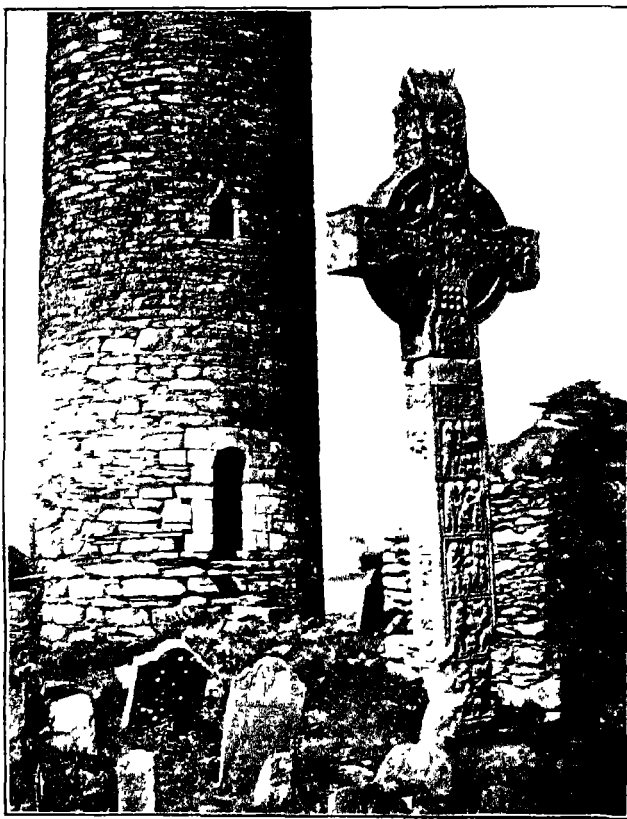


JOURNAL OF THE TRANSACTIONS
OF
THE VICTORIA INSTITUTE.

VOL. XXXVIII.



MONASTERBOICE.

(To illustrate Miss Hull's paper page 182.)

JOURNAL OF
THE TRANSACTIONS
OF
The Victoria Institute,
OR,
Philosophical Society of Great Britain.

EDITED BY THE SECRETARY.

VOL. XXXVIII.



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1906.

LONDON

HARRISON AND SONS PRINTERS IN ORDINARY TO HIS MAJESTY,
ST MARTIN'S LANE.

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** * * The Institute's object being to investigate, it must not be held to endorse the various views expressed at its meetings.*

PREFACE.

IN issuing the 38th Volume of the Transactions, I have only to impress on Members and Associates the obligation they are under to endeavour to increase the influence of the Institute and to add to the number of its adherents. The Council has never adopted outside means of popularity by advertising in order to attract the public, being satisfied with dependence on the efforts of its friends, the interest and importance of its objects, and the honour of enrolment in its ranks. Nevertheless, efforts are necessary to bring the work of the Victoria Institute to the notice of those whom it is desirable to attract, and with this object a copy of the "Objects Paper" will be issued to those receiving the new volume of Transactions, with the hope that each Member or Associate will endeavour to bring in at least one adherent during the ensuing year.

The Council would esteem it a favour to receive communications on subjects suitable for discussion and publication, and also to receive the names of persons considered qualified to deal with them.

EDWARD HULL, LL.D.,

Secretary and Editor.

ANNUAL GENERAL MEETING.

HELD IN THE HOUSE OF THE SOCIETY OF ARTS,
JOHN STREET, STRAND, W.C.

ON WEDNESDAY, JUNE 13TH, 1906.

LIEUT.-GEN. SIR H. L. GEARY, K.C.B., V.P., IN THE CHAIR.

The CHAIRMAN.—I am sorry to have to announce that Lord Halsbury, who was to have presided, is unable to be here, and I must ask you to be satisfied with allowing me to occupy the chair that he otherwise would have taken.

The Secretary, Professor Hull, has also written to me to say that by the doctor's orders he is unable to attend, and Mr. Rouse has kindly consented to take his place. I will now ask Mr. Rouse to read the Report.

The Report of the Council was then read by Mr. ROUSE, as follows:—

1. In presenting their FORTIETH ANNUAL REPORT, the Council have pleasure in stating that the work of the Institute shows no signs of decrease in interest on the part of members, and the papers and discussions may be considered of exceptional value.

2. The year will be memorable in the Annals of the Society as being the first in which competition for the "Gunning Prize" took place. This event called forth several essays of exceptional merit

NOTE.—A lecture was delivered by Mr. Frederick Enock, F.L.S., on "The Wonders and Romance of Insect Life," illustrated by coloured lantern photographs, instead of the Annual Address by the President.

on the subject of "The bearing of recent Oriental Discoveries on Old Testament History." The prize of £40 was awarded to the Reverend John Urquhart, and that next in merit, by the Reverend A. Craig Robinson, received a honorarium of five guineas voted by the Council; both essays will be printed in the forthcoming volume of *Transactions* (vol. xxxviii), and we have the promise that a third of the essays, dealing with the discoveries in and around Jerusalem, by Dr. E. W. G. Masterman, will be read before the Institute next session.

It would be invidious to single out of the list other essays of merit—but perhaps it may be allowable to refer to one by a lady, both because of its merit, and because the subject is one that very few would venture to handle: we refer to the essay by Miss Eleanor Hull on "The Early Celtic Church of Great Britain and Ireland."

3. *New Rule as regards Election on the Council.*—Under Clause 2 of the Constitution of the Institute, election to a seat on the Council was only open (with special exceptions) to Members. But it has been found that by this rule Associates who have exhibited much interest in the proceedings of the Society, and would be well qualified to act as useful members of Council, were debarred from serving. The rule has now been altered by which only Members were capable of serving on the Council, and it is hoped there will be henceforth less difficulty than heretofore in filling up vacancies.

4. The number of members and associates has slightly decreased since last year. It is much to be desired that our supporters should endeavour to enlist the interest and adherence of their friends.

The following is a statement of the numbers of the constituency of the Institute at the end of May, 1906:—

Life Members	...	...	...	42 in number.
Annual „	...	...	...	151 „
Life Associates	...	...	...	69 „
Annual Associates	...	...	...	419 „
Hon. Corresponding Members	...	...	...	174 „
Total				<hr/> 855 <hr/>

5. The following is the new list of the Officers and Council —

President

The Right Honourable The Earl of Halsbury, M A D C L, F R S

Vice Presidents

Sir T. Fowell Buxton, Bart, K C M G
 W. H. Hudleston, Esq., F R S, F G S
 Alexander McArthur, Esq., D L, J P
 David Howard, Esq., D L, F C S
 Lieut. General Sir H. L. Geary, K C B
 Right Hon. Lord Strathcona and Mount Royal, LL D, F G S

Honorary Correspondents

The Right Hon. Lord Kelvin, Past F R S	Professor A. H. Sayce, D D, LL D
Professor A. Agassiz, D C L, F R S	Professor Fridtjof Nansen, D Sc
Professor F. Naville (Geneva)	Professor Warren Upham.
Professor Maspero (Paris)	

Honorary Auditors.

J. Allen, Esq.	Lieut.-Col. Mackinlay, late R A
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Honorary Treasurer

Edward Stanley M. Perowne, Esq., F S A

Secretary and Editor of the Journal.

Professor Edward Hall, M A, LL D, F R S

Council.

(In Order of Election)

Rev. Principal James H. Rigg, D D	Commander G. P. Heath, R N
Maj. Kingsley O. Foster, J P, F R S	Rev. G. F. Whidborne, M A, F G S, F R G S
D. Howard, Esq., D L, F C S, F I C, f c	Lieut. Gen. Sir H. L. Geary, K C B, R A
(Trustee)	Walter Kidd, Esq., M D, F Z S
Rev. Dr. F. W. Tremlett, D D, D C L, Ph D	Edward Stanley M. Perowne, Esq., F S A
Very Rev. Dean Wace, D D (Trustee)	Martin Luther House, Esq., B L
Rev. Chancellor J. J. Lias, M A	Rev. R. Ashington Bullen, M A, F G S
Rev. Canon R. B. Girlestone, M A	Colonel T. Holbein Hendley, C I E
General Halliday	Arthur W. Sutton, Esq., F I S
Rev. John Tuckwell, M R A S	Rt. Rev. Bishop J. E. C. Weldon, D D
Lieut. Colonel Mackinlay, late R A	Professor H. Langhorne Orchard, M A, B Sc
Theo. G. Pinches, Esq., LL D, M R A S	Sydney T. Klein, Esq., M R I
Ven. Archdeacon W. M. Sinclair, M A, D D	Rev. Prebendary H. E. Fox, M A
Gerard Smith, Esq., M R C S	

Deaths

The Council have to deplore the loss of many supporters, including some of the most valued and distinguished members, of whom may be especially mentioned the Rev. Canon Tristram, D.D., F.R.S., Professor Lionel Beale, F.R.S., and Signor Cavaliere Jervis, F.G.S., of Turin. Short obituary notices of these will be found in the forthcoming volume of *Transactions*, and amongst others are the following:—

H. H. Bolton, Esq., J.P., J. S. Budgett, Esq., G. B. Buckton, Esq. F.R.S., Miss Carruthers, Sir Richard Couch, P.C., Colonel W. Carey, C.B., Rev. H. de la Cour De Brisay, Rev. W. H. Frazer, D.D., Dr. F. J. Gant, Rev. Canon Garratt, M.A., Rev. Canon T. E. Huntingford, D.C.L., Mrs. E. N. Hutchinson, Rev. Dr. W. R. Harper (Chicago), Rev. E. E. Jenkins, LL.D., Rev. Samuel J. Johnson, Right Hon. Lord Masham, Dr. W. Ogle, Colonel G. Rhodes, J.P., General Sir William Stirling, K.C.B., The Ven. Archdeacon Thornton, D.D., Rev. Canon F. C. Woodhouse, M.A.

MEETINGS.

The subjects dealt with at the ordinary meetings during the past session may be arranged under the following heads:—

1. BIBLICAL.

1. "On the Bearing of Recent Oriental Discoveries on Old Testament History." By Rev. JOHN URQUHART.
2. "Evolutionary Law in the Creation Story of Genesis." By Rev. A. IRVING, D.Sc.
3. "The Bible Pedigree of the Nations of the World." By MARTIN L. ROUSE, Esq., B.L.
4. "On the Bearing of Recent Oriental Discoveries on Old Testament History." By Rev. ANDREW CRAIG ROBINSON, M.A.
5. "The Bible in the Light of Modern Science." By Dr. W. WOODS SMYTH.
6. Biblical Astronomy, Part II., "The Morning Star." By Lieutenant-Colonel G. MACKINLAY.

2. GEOGRAPHICAL.

1. "Iceland: Its History and Inhabitants." By Dr. JON STEFANSSON.

3. GEOLOGICAL AND PHYSICAL.

1. "Biological Change in Geological Time." By Professor J. LOGAN LOBLEY, F.G.S.
2. "Ice or Water." Review of Sir Henry Howorth's book. By Professor EDWARD HULL, LL.D., F.R.S., Secretary.

4. HISTORICAL.

1. "The Early Celtic Church of Great Britain and Ireland." By Miss ELEANOR H. HULL.

5. ASTRONOMICAL.

1. "The Zodiacal Arrangement of the Stars." By the Rev. A. B. GRIMALDI, M.A.

8. *The Journal of Transactions.*

The thirty-seventh volume of the *Journal of Transactions* has been circulated in many lands. The Council may be allowed to repeat, for the information of recent members,

what has already been stated—that from time to time expressions of approval and gratitude are received from members living abroad, while many of the learned societies at home and abroad exchange publications with the Institute. We have also several public libraries which subscribe for the Volumes. Of persons connected with our Society, about 74 belong to the United States of America, 40 to India, 14 to Australia, 12 to Canada, and about the same number to New Zealand and South Africa, and 1 (Public Library) to Bermuda.

9. *Conclusion.*

While humbly desiring the continued blessing of Almighty God, and the support of its members, the Council wishes to express its thanks to the contributors of papers, which are being offered in increasing numbers, and to press upon its friends the duty of doing what in them lies to increase the membership and extend the usefulness of the Institute.

Signed on behalf of the Council,

HALSBURY,

President.

BALANCE SHEET, year ending December 31st, 1905.

RECEIPTS.

	£	s.	d.	£	s.	d.
Balance from 1904 ..	..	..	..	28	2	10
Subscriptions:—1 Life Member ..	..	21	0	0	..	..
1 Member, 1904 ..	..	2	2	0	..	..
120 Members, 1905 ..	..	252	0	0	..	..
5 " " 1906 ..	..	10	10	0	..	..
2 Life Associates ..	..	19	10	0	..	..
1 Associate, 1902 ..	..	1	1	0	..	..
1 " " 1903 ..	..	1	1	0	..	..
6 Associates, 1904 ..	..	6	6	0	..	..
283 " " 1905 ..	..	297	3	0	..	..
14 " " 1906 ..	..	14	14	0	..	..
Sales ..	..	..	..	625	7	0
Dividend on 2½ p.c. Consols ..	..	..	..	27	6	6
Donation ..	..	..	..	27	13	8
Gunning Fund (for Expenses) ..	..	..	..	3	2	6
Sale of £165 18s. 9d. Consols at 89 ¹⁵ / ₁₆ ..	..	..	..	10	10	0
Balance debtor Bills owing £122 4s. 2d., less cash in hand £8 4s. 6d. ..	..	..	..	147	19	0
	..	..	..	113	19	9
				<u>£984</u>	<u>1</u>	<u>3</u>

There is a Capital sum of £1,000 2½ Consols, also the Capital of the Gunning Trust Fund, £508 Great India Stock.
 Gunning Prize Fund:—
 Balance from 1904 .. £ s. d.
 Jan. 5th. Interest .. 44 0 5
 July 10th. " .. 10 17 5
263 2 7

We have examined the Balance Sheet with the Books and Vouchers.

May 16th, 1906.

EXPENDITURE.

	£	s.	d.
Printing
Postage
Binding
Reporting
Stationery
Expenses of Meetings
Clerk—Salary
" Insurance
Rent
Housekeeper
Coal and Light
Library
Secretary
" Travelling
Fire Insurance
Bank Charges
Subscription repaid
Adjudicator's Fee (Gunning Prize)
Sundries
Unpaid Bills
			<u>£984</u>

Nov. 27th. Victoria Institute (Expenses) ..	10	10	0
" Rev. John Urquhart, Prize Essay ..	40	0	0
Dec. 2nd. Rev. Andrew C. Robinson, 2nd Prize ..	5	5	0
Balance Credit ..	<u>£55</u>	<u>15</u>	<u>0</u>
	<u>6</u>	<u>7</u>	<u>7</u>
	<u>£53</u>	<u>2</u>	<u>7</u>

JOHN ALLEN,
 G. MACKINLAY, Lieut.-Colonel, } *Auditors.*

The CHAIRMAN.—Ladies and gentlemen, you have heard the Report for the year read, and it calls for few comments on my part in addition. I should like more particularly to draw attention to what we may call the event of the year, the competition for the first prize, called the Gunning Prize. This essay, as well as that which received a second prize, met with considerable attention in many quarters from people well able to judge their merit, and they have been republished in America; several inquiries for the essays have been made in various directions and permission has been given by the Council to have them read where requested in different parts of the country. As members of the Institute we bear in mind that its work is not for the honour and glory of the Institute so much as for the great Cause we have in hand; and those present will doubtless agree with me that in the present day there is great room and necessity for the discussion of subjects bearing on the interpretation of the Old and New Testaments, and that there should be an Institution like this where subjects—whether Biblical or Scientific—should find a home, as they have in the Victoria Institute. I think we all of us could extend the usefulness of the papers which are read, printed and issued to the members, by circulating them as much as we can amongst our friends, and so using them as seed to spread broadcast throughout the country.

As regards the membership, one is sorry to observe that the number has fallen a little short of what it was last year. We very much desire to raise our numbers, because in proportion to the numbers who join the Institute our funds are benefited, and we are consequently able to do more work. It is, however, encouraging with the existing membership that we have so wide a circulation, and that we have members not only in England but in America, and in our Colonies; showing that there is a considerable number of people scattered in many directions by whom our work is thoroughly appreciated. The balance sheet shows the fact of our deficiency of members; but I think if everyone would try in the course of the year to get at least one more recruit it would not only be a great benefit to the individual but to the Society at large.

I will now ask Dr. Irving to be kind enough to move the first resolution.

Rev. Dr. IRVING.—I am getting rather accustomed to this

exercise here for several years past now, but I do not know that I have anything particular to say to-day.

With regard to the Report, it is short, but it points to much that is very good. I fully associate myself with the Council in regretting the loss of Dr. Tristram and Professor Beale, both of whom as scientists and good Christian men I held in very high esteem.

The paper that has been specially referred to after the Gunning Prize Essays is one by Miss Eleanor Hull, on the early history of the Celtic Churches in Britain and Ireland. It was a most important subject; because until recent years very little has been generally known among Church-people of the enormous value to the foundation of the English Church laid by the early British Church, and the enormous share that the Celtic Churches of Scotland and Ireland took in founding the Church of our Anglo-Saxon forefathers. They did perhaps a great deal more than Augustine and his followers, and I therefore endorse the strong approval which the Council has expressed of the value of Miss Hull's work.

With regard to the general working of the Institute, I may again remind you—speaking especially of my experience during the last year—that these great questions which the Institute discusses from time to time, being broad questions, are not questions that can always be dealt with most satisfactorily by specialists. They require great thoughts to be laid on from more than one side; from several sides. We want to try and walk round them, and see the thing from the point of view at least of revelation and science and history; because there we have represented the three great factors through which God educates mankind—revelation, history and science, representing the three great departments of spirit, of providence and of nature: God's three instruments—so that I think we ought to encourage as much as possible papers that deal with broad and general questions, as I conceive that the highest function of this Institute is to try and hold the balance between different lines of thought and correlate the thoughts and researches carried out by scientists in different branches of history; because I hold very strongly that if a Christian man has the central conviction of the heart which enables him to hold on to the Divine revelation as it has come through Jesus Christ, his mind may be absolutely free

to move in thought through all the regions of knowledge of which the human mind is capable.

* * * *

I have much pleasure in proposing that this resolution be adopted. The resolution reads thus: "That the Report be received and the thanks of the Members and Associates presented to the Council, Honorary Members and Auditors, for their efficient conduct of the business of the Victoria Institute during the year."

General HALLIDAY.—Mr. Chairman, I am placed in a very difficult position because I am asked to second a resolution of a vote of thanks to myself as Member of the Council. I did not expect that. Let me rather thank you for the kind way in which you have in this resolution introduced the efforts with which we have, as a Council, endeavoured to conduct the business of the Society. If you just allow me to shut myself out for a moment, I will second the resolution that has now been brought before the meeting, that the Report be received, etc., and I can also say, by way of perhaps excusing myself, it has so happened by the working of Providence that, owing to absence from home, I have had a very small part in the carrying out of the efficient conduct of the business of the Victoria Institute during the year.

The CHAIRMAN.—The resolution has been moved and seconded that the Report be received and thanks of the Members and Associates presented to the Council, Honorary Members and Auditors for their efficient conduct of the business of the Victoria Institute during the year. [Carried.]

Dr. IRVING.—I wish to add a rider to the resolution, to express personal regret at the absence of the Secretary.

Mr. ROUSE also expressed regret, and said there could not be a more unwearied Secretary than Professor Hull.

The CHAIRMAN.—The expressions of regret will be conveyed to Professor Hull and also to Lord Halshury, who was unable to be present. I will now ask Mr. Enock to give us his lecture.

The lecture, entitled "The Wonders and Romance of Insect Life," was then given by Mr. Frederick Enock, F.L.S., and illustrated by coloured lantern photographs.

Mr. ROUSE, in proposing a vote of thanks to the lecturer, said : I think we have had a lecture that far exceeded our highest expectations. I confess that I have. Much as I had heard and been given to understand concerning Mr. Enock's researches, they have surpassed all that I expected. I think they have been illustrated in the most admirable way by his photographic slides and pictures, and we owe him our most hearty thanks. At the same time we feel with him how wonderful are the works of God ; His works in the vast and the minute ; "Who gives its lustre to an insect's wing and wields His throne upon the whirling worlds."

Professor ORCHARD.—I am asked to second the resolution of thanks, and it is very pleasant for me to do so. We are very much indebted for the valuable information and not less for the beautiful illustrations and the exquisite photographs. We all agree with the lecturer that the stamp and signature Divine are as effectively shown by these microscopic forms of life as by the suns and the planets. [Carried by acclamation.]

Mr. ENOCK.—I am much obliged for your kind vote of thanks, and more obliged for your very close attention. I must thank the gentleman who has shown my slides so beautifully, as everything depends upon the way in which they are shown.

Lieutenant-Colonel G. MACKINLAY.—The pleasing duty falls to my lot to propose a vote of thanks to our chairman, Lieutenant-General Sir Henry Geary, who has so readily filled the gap at the shortest notice.

We have heard how Sir Henry introduced the Proceedings of the Victoria Institute to the Bermuda Library when he was Governor ; since that time he has helped our cause by simply reading the Gunning Prize Essay by the Rev. J. Urquhart at village meetings, where it was much appreciated. The prize essay and also that on the same subject by the Rev. A. C. Robinson, both of which are based on the results of recent archaeological discoveries, are most valuable, as they contain many proofs in concise and striking language to the truthfulness of the inspired word of God.

We may say that imitation is the sincerest form of thanks ; what our Chairman has done in reading the prize essay to others, we may each do in our own neighbourhood, and thus serve the cause of truth and the interests of the Victoria Institute. The two essays will of course appear in the annual printed Proceedings, which

will be supplied to each Member and Associate ; but separate copies of each of these may be obtained from the Institute. I have much pleasure in proposing the vote of thanks to our Chairman.

Commander HEATH seconded the vote, which was put to the meeting and carried unanimously.

The CHAIRMAN.—I am very much obliged to you for the vote of thanks. I did not know until I came into the room that I should be called on to fill the chair, and I was hardly prepared for it.

As I said before, we have all got the welfare of the Institute before us ; yet the thing we come here for is the Cause rather than the Institute.

NEW RULE REGARDING ELECTION ON THE COUNCIL.

The attention of Members and Associates is called to the following alteration in the rule of the *Constitution*, paragraph 2, duly adopted at a special general meeting on Monday, May 21st, 1906, the effect of which will be to allow Associates to be elected on the Council :—

“The government of the Society shall be vested in a Council whose Members shall be chosen from among the Members and Associates of the Society who are professedly Christians ; and shall consist of a President, two or more (not exceeding seven) Vice-Presidents, a Treasurer, one or more Secretaries (Honorary or otherwise), and twelve or more (not exceeding twenty-four) Ordinary Members of Council, who shall be elected at the Annual General Meeting of the Members and Associates of the Institute. But, in the interval between two Annual Meetings, vacancies in the Council may be filled up by the Council.

“The Members or Associates chosen as Trustees of the funds of the Institute shall be *ex officio* Members of Council.”

OBITUARY NOTICES.

BY THE EDITOR.

WITHIN the past year, the Institute has had to mourn the loss of several of its most distinguished supporters, amongst whom may be specially named, Rev. Canon Tristram, Professor Lionel S. Beale and Cavaliere W. P. Jervis, of Turin. It would be impossible within the limits here imposed to present anything more than a brief outline of the history of these eminent men, who during their lifetime rendered service to the cause of religion and science, and were justly regarded as ornaments and valued supporters of our Institute. But a brief sketch of their life-work may not prove unacceptable to the friends and colleagues who have to deplore their loss. Of the three above-named, perhaps the name of Canon Tristram is the most widely known, and, at the request of the Council, I proceed to give a brief sketch of his remarkable career, as far as it falls within my own personal cognizance.

THE REV. HENRY BAKER TRISTRAM, D.D., LL.D., F.R.S., was born May 11th, 1822. In 1845 he was ordained to the curacy of Morehatch-Bishop, Devonshire, which he was obliged to resign in less than two years in consequence of ill-health; this caused him to seek a warmer climate, and he accompanied Admiral Sir Charles Elliot, as chaplain and secretary, to Bermuda. Upon his return to England in 1849 the state of his health again induced him to seek a warmer climate, and in 1855 he went to Algiers. It was during his stay in Northern Africa that he had opportunities of cultivating that love for exploration and natural history with which he was so strongly imbued during the rest of his life, and resulted in the discovery of species of fishes inhabiting an inland lake in the Sahara, as also the waters of the Mediterranean Sea, proving (what is now generally recognised) the former extension of the waters of this great inland sea over the plain of the Sahara.* In 1857 Tristram paid his first visit, on board a yacht, to Palestine, a country which from its Biblical associations, its physical characters and natural history productions called forth all his interest and

* *The Great Sahara*, 1860.

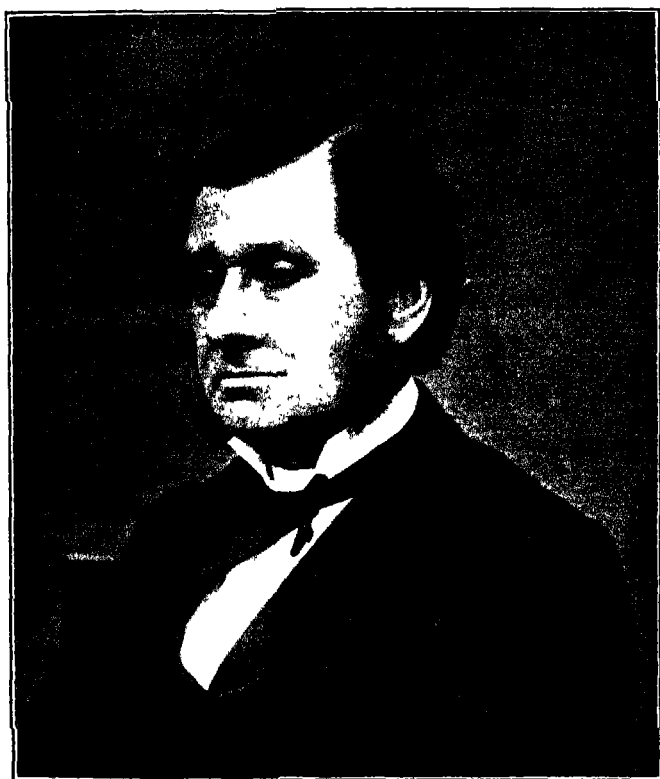
enthusiastic efforts for their elucidation. In the two following visits to the Holy Land in 1863 and 1873, he devoted his energies towards establishing by personal observation the truth of the historical events and topographical narratives recorded in the Bible over the region lying on both sides of the Jordan Valley. Tristram's *Land of Israel* (4th edition, 1884) is one of the most valuable and interesting works ever written on Palestine. In it he describes in clear and graphic language the physical features of that region, and their bearing on Biblical history. Amongst these features are the remarkable terraces rising about 600 feet above the present level of the Dead Sea, but which were at one time unquestionably the bed of this inland lake when its waters stood at a much higher level than they do at the present day. Amongst the most interesting of his identifications was the view from the plains of Maure (Hebron), from which he was able to look down on the deep depression of the plain of Jericho at the head of the Dead Sea, which must have been the site of Sodom and Gomorrah, the "Cities of the Plain," thus corroborating the account of Genesis (ch. xix, 27, 28), where Abraham is described as beholding the smoke of the burning cities as the smoke of a furnace, when God destroyed these cities; but delivered Lot and his family from the destruction. Canon Tristram's last visit was chiefly restricted to Moab and the eastern shores of the Dead Sea, and is described in his *Land of Moab* (2nd edition, 1874). Here shut up in Kerak, the stronghold of the Arabian chief, he had some difficulty in making his escape.* It may be confidently affirmed that the result of the several visits made by Canon Tristram with, we may say, Bible in hand, only served to confirm in his mind the truthfulness of the Biblical narratives both of the Old and New Testament. This was Tristram's main object in life outside and beyond the duties which each day devolved upon him. As a citizen, as well as a Churchman, he was greatly loved and respected, as witnessed by his election as Provincial Grand Master of "Mark Masons" of the two northern counties, and D. Prov.-Gov. Master Parson of the Province of Durham. In 1879 he was offered by the Earl of Beaconsfield, but declined, the position of Bishop of the Anglican community of Jerusalem, chiefly on the ground of family engagements. He entered into

* Recollecting this circumstance, when the expedition of which the writer was a member in 1883 arrived from the Arabah at the southern shore of the Dead Sea and received an invitation from the Sheikh of Kerak to pay him a visit, the invitation was politely declined.

rest at the age of eighty-four. The last occasion on which I met my friend was that on which he had come up to London to be present at the unveiling of the statue of Huxley, now standing in the hall of the Natural History Museum, South Kensington.

PROFESSOR LIONEL S. BEALE, M.B., and F.R.C.P.Lond. and F.R.S.

Amongst the most distinguished of our members whose death we have to deplore was Professor Lionel Smith Beale, who died on the 28th March last at the age of seventy-eight. A very full and interesting obituary of Professor Beale appears in the *Lancet* of the 7th April in which his remarkable career is described; but it is to be regretted that no mention is made of his connection with the Victoria Institute, in which for several years past he had taken a great interest, becoming one of its Vice-Presidents, contributing papers, and often presiding at its meetings. It therefore becomes the more necessary that the relationship of Dr. Beale to the Institute should be here recorded. Dr. Beale was one of the pioneers in the application of the microscope to the study of the minute forms of living organisms, a study which has been so widely extended in our day. From his entrance as a student in King's College at an early age till the year 1850-51, when he was elected Resident Physician to King's College Hospital, and onwards, the microscope was his constant companion in investigating the action and habits of micro-organisms; and in determining the nature of vital, as distinguished from purely mechanical, force. The result of these long-extended observations was to convince Dr. Beale of the absolute difference between life and non-life; and he opposed with all his powers the view of those who sought to explain the mysteries of life as the outcome of physico-chemical laws. In the words of the able writer in the *Lancet*, though in his attacks on "Atheism," "Materialism," "Agnosticism," "Monism" and "Free Thought" his own position was scarcely defined with sufficient clearness, yet in one of his papers on "Vitality" he stated the following conclusions, in accordance with minute investigations and natural knowledge, which may be taken to sum up his position: "1. That ours is the only life-world at this time known. 2. That all living matter is, and has ever been, absolutely distinct from all non-living matter; and 3. That the differences between man and all other organisms in nature are absolute." With reference to the first of those conclusions it should be observed that



LIONEL SMITH BEALE, M.B.LOND., F.R.C.P.LOND., F.R.S.,
EMERITUS PROFESSOR OF MEDICINE IN KING'S COLLEGE, LONDON, CONSULTING PHYSICIAN TO
KING'S COLLEGE HOSPITAL.

Dr. Beale must not be supposed to have made any reference to that spiritual life revealed to us in Holy Scripture and which is the Christian's hope.

Dr. Beale was the author of several valuable works which had a wide circulation; the chief of which were *How to work with the Microscope*, the *Microscope in Medicine and Protoplasm*; or *Life, Matter and Mind*. He also contributed the following papers to the *Transactions of the Victoria Institute*:—

- Vol. 16. "On the New Materialism."
- " 16. "On the Living and the Non-living."
- " 20. "Structure and Structureless."
- " 32. "Nature of Life," Part I.
- " 33. "Nature of Life," Part II.
- " 34. "Water essential to all Life."
- " 35. "Unseen Life of our World."
- " 35. "Living God of Living Nature."

For the excellent portrait of Dr. Beale, which forms the frontispiece of this volume, we are indebted to the kindness of the Editor of the *Lancet*, who lent the block for the impressions, and to whom we now offer our thanks.

CAVALIERE W. P. JERVIS: late Curator of the Royal Industrial Museum, Turin.

Cav. W. P. Jervis was born in the Belgaum province of Madras in 1831, while his father, Colonel T. B. Jervis, was engaged on the Topographical Survey of India. In 1842 Colonel Jervis, having resigned his position in India, returned to England, and being a member of the Royal Institution, he entered his sons for the special private lectures that were given to members' sons by Faraday, Playfair, and other professors, resulting in the development of a taste for geology and mineralogy, which his son afterwards cultivated to such useful purpose when residing in Italy. In 1849 Jervis went as engineer to the mines of Hayle, in Cornwall, and some time after he went over to Belgium in the pursuit of drawing and art. After his father's death in 1857 Jervis went to Edinburgh, where he followed the courses in natural history and chemistry by Professor Lion Playfair, and passed the examinations with credit. Here he was invited by M. Devincenzi to collaborate with him in the foundation of an Italian Industrial Museum in Turin, and was elected curator of that institution, a position which he held for several years, during which time he was appointed as representative to several

Industrial Exhibitions, that of London in 1862, of Dublin in 1865, and of Paris in 1878. Cav. Jervis was a most indefatigable worker. He was a great explorer amongst the Alps. Even in his old age, in 1897, he went over the Alps on foot in winter, risking being frozen, in order to gather information as to the telluric movement which took place in that region. Jervis' most important works were *The Mineral Resources of Central Italy*, published by the Society of Arts in London, and *I Tesori sotterranei dell'Italia*, in four vols. To the *Transactions of the Victoria Institute* he contributed the following:—

Vol. 32. "Thalassographical Notes on the North Sea."

„ 36. "Prehistoric remains near Tenda, Italy."

„ 37. "Minerals and Metals of the Old Testament."

In 1898 the writer had the pleasure of visiting Sgr. Jervis and his daughter at their residence in Turin, and from that time he became a frequent correspondent with the Secretary. In 1898 he was elected an Associate of the Institute, and in 1860 he became a Fellow of the Geological Society. Our late Associate was a devout student of the Bible, and a well-wisher to the Reform movements in Italy. His sympathies were with the Vaudois Christians of Italy, who have a large church in Turin, and his remains were laid to rest in the cemetery near the resting place of his beloved wife in Torre Pelli (Waldensian Valleys). It ought to be mentioned that Cav. Jervis received his title and decoration from H.M. the King of Italy in recognition of his important work.

THE EARTHQUAKE OF SAN FRANCISCO.

The following graphic letter from a valued Associate describing the disasters in which he was involved in San Francisco will be read with interest :—

SAN FRANCISCO,

Edward Hull, Esq.

May 16th, 1906.

Dear Sir,

Your very kind letter reached me a few days ago, and I am very grateful to you for your feelings towards me.

In God's love and mercy I was kept safely through the calamity which wrecked and burnt completely over 10,400 acres of the finest section of the city of San Francisco. A great number of the people lost everything they possessed; a few like myself with great effort saved such things as could be carried in a valise. Traffic was almost stopped owing to the condition of the streets and military rule. Hardly anyone had with them enough money to pay exorbitant rates when a chance offered to hire part of a wagon. The predominant opinion is expressed when I say that everyone feels they were fortunate to escape alive; almost all else can be replaced in time. At no time could one see any pessimistic spirit, and even while the fire still burnt and smouldering ruins sent up clouds of smoke, the thought was "how quickly can we get back to our old quarters again?" the energy and spirit shown has been almost as wonderful as the great fire itself! I have travelled all round the world, and my mining business has taken me all over this great Western country and Alaska. The great wonders of nature in their magnificence and grandeur have impressed me with the ideas of beauty and reverence, but nothing has ever so impressed me as the infernal horror—the weird and awful effect of a city of great buildings turned into one immense furnace for the destruction of the works of men; nothing remaining but ruins. From a distance of ten miles I took the angle of the smoke outlined in a clear sky, and found it reached an altitude approximately of four miles.

It will be a great pleasure to me if I can do anything to help forward the interests of the Victoria Institute, and I trust ere long the day will come when I shall be able to do more for a Society whose good work I so much appreciate.

I remain, Yours very truly,

H. B. WARD.

ORDINARY MEETING.*

LIEUT.-GENERAL SIR H. L. GEARY, K.C.B., V.P., IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed.

The following candidates were elected :—

ASSOCIATES :—HARRY COLLISON, Esq., Barrister-at-law, 1, Temple Gardens ;
Rev. W. H. GRIFFITH THOMAS, B.D., Principal of Wycliffe Hall, Oxford ;
Miss GRACE BLANDY, Bircham House, Coleford.

The following paper was read by Rev. Canon GIRDLESTONE, in the absence of the Author :—

THE BEARING OF RECENT ORIENTAL DISCOVERIES ON OLD TESTAMENT HISTORY. By the Rev. JOHN URQUHART. Being the essay for which "The Gunning Prize" was awarded by the Council.

HISTORY has again and again furnished striking coincidences ; but few of these have been more remarkable than one which has characterised our own times. We have witnessed, on one hand, the outburst of a scholarly, persistent, and professedly Christian attack upon the historical character of the Old Testament ; and, on the other hand, the splendidly equipped, and marvellously successful, activity displayed in the exploration of Eastern lands. Their ancient cities have been excavated ; their monuments have been deciphered ; their history has been resuscitated ; and primeval civilisation has been unveiled. These two movements, in so far at least as the Bible is concerned, have been the outstanding features of the latter half of the past century and of the beginning of the present. They have arisen, and they have progressed, in entire independence of each other ; but no two movements have ever had a closer connection.

* Monday, December 11th, 1905.

The historical references of the Old Testament have a wider range than those of any other ancient book. It commences with the story of primeval humanity and of the catastrophe which brought it to an end. While confining itself in subsequent portions to the story of Israel, the Old Testament nevertheless reflects to some extent the institutions, the customs, and the international relationships, of the times with which it deals. There were occasions also when Israel was brought into contact with both neighbouring and more distant countries; and the Old Testament history consequently introduces us to peoples and to personages of the time. Hence, in the recovery of documents relating to those very periods, oriental research has come frequently, and sometimes startlingly, into line with the Biblical history. How far the results of these researches support, or are in conflict with, the attack upon the historical accuracy of the Scripture, the rapid survey which follows is intended to disclose.

1. *The Books of Chronicles*.—We shall begin with the Books of Chronicles. Professor W. Robertson Smith, writing in the *Encyclopædia Britannica*, passes a comparatively lenient judgment on their historicity. While asserting that they contain errors in numbers, and professedly historical statements which have no better foundation than inference, he dismisses the charges of wholesale fabrication which have been brought against them. This is a distinct contrast to Wellhausen's fierce attack, in which certain of the narratives are described as "frightful examples" of Jewish imagination. Others have condemned what is supposed to be their "partiality for large numbers." It cannot be said that there is at the present time any apparent tendency to reverse, or even to modify, that judgment. A publication* which professes to supply the public with the most recent authoritative opinion on Biblical and other matters, says: "The variations of the Chronicler from the latter" (the Book of Kings) "are due in most instances to his religious pragmatism. Everything is done to emphasize the ancient importance of the Levites, who are introduced at points and on occasions which are most inappropriate. Taking all this together, it is claimed by many that the historical value of the Chronicles, where they vary from the Books of Samuel and Kings, is small; and except in some details, which have chiefly an interest as representing perhaps a more or less widespread tradition, there is a reluctance among

* *The New International Encyclopædia* (1902). See art. "Chronicles."

modern critical scholars to depend upon them in the study of Hebrew history."

The unexpected testing of these Books by oriental discovery has resulted in what must be described as a contrary verdict. Perhaps the most striking illustration of this occurs in the references to King Uzziah of Judah. It is to the Chronicles alone that we are indebted for any notice of the vast importance of that monarch's reign. We are told that "he went forth and warred against the Philistines, and brake down the wall of Gath, and the wall of Jabneh, and the wall of Ashdod; and he built cities about Ashdod, and among the Philistines. And God helped him against the Philistines, and against the Arabians that dwelt in Gur-Baal, and the Melunims. And the Ammonites gave gifts to Uzziah; and his name spread abroad even to the entering in of Egypt; for he strengthened himself exceedingly. . . . Moreover Uzziah had an host of fighting men, that went out to war by bands, according to the number of their account by the hand of Jeiel the scribe and Maaseiah the ruler, under the hand of Hananiah, one of the king's captains. The whole number of the chief of the fathers of the mighty men of valour was 2,600. And under their hand was an army, 307,500, that made war with mighty power" (2 Chron. xxvi, 6-13). The account concludes with a reference to the "engines invented by cunning men" for the defence of Jerusalem, which were able "to shoot arrows and great stones withal."

In the above there is a complete departure from the earlier narrative in Kings. The information given by the Chronicler is entirely new. We are thus furnished with a crucial test as to the historical value of his independent statements. Tiglath-Pileser III. of Assyria was at this time subjugating the nations of the West. His monuments were mutilated by a successor; but there is now no doubt that he was one of the ablest and most resolute of the Assyrian kings. Tiglath-Pileser's is described by Dr. Pinches as "one of the most important reigns in Assyrian history." It was supposed that, in a tablet which has come to us only in fragments, Azariah, or Uzziah, is named by the Assyrian king as one of his tributaries; but that reading has not been sustained. The references to the Jewish king convey an entirely different impression. Judah was apparently too strong to permit of an Assyrian invasion. There was a confederacy against Assyria among the Western peoples of which Uzziah was a supporter, if not the instigator and chief. The confederates were subdued and punished;

but, though the victorious Assyrian armies were in its neighbourhood, Judah was not troubled. "It would almost seem," says Dr. Pinches, "that Azariah of Judah took part in the attempt to get rid of Assyrian influence; and although this was fully recognised by Tiglath-Pileser, the Assyrian king, to all appearance, did not come into direct contact with his country."*

This fact is highly significant. Tiglath-Pileser mentions a number of cities with their surrounding territories which he punished for what seems to have been a wide-spread rebellion. The inscription proceeds: "XIX districts of the city of Hamath with the cities which were around them, of the sea-coast of the setting of the sun, which in sin and wickedness had taken to Azri-a-u (Azariah), I added to the boundary of Assyria. I set my commander-in-chief as governor over them; 30,300 people I removed from the midst of their cities, and caused the province of the city of Ku—— to take them." It is clear from the above that Uzziah was the soul of the confederacy against Assyria. It was to him as Assyria's adversary that those districts of Hamath had given their adhesion. That Jerusalem and Judah were not dealt with in like manner can be explained only by Azariah's possession of power and generalship such as are ascribed to him in Chronicles. Schrader speaks of the part of the inscription above quoted as "that important passage respecting the alliance of Azarjah (Uzziah of Juda) with Hamath." He continues, "From this we learn that, while Tiglath-Pileser chastised Hamath for its alliance with Juda, he did not see fit to molest the latter as well; a clear proof of the accuracy of the Biblical account of the firmly-established power of Uzziah."† In the face of the fact that, as already stated, we are indebted to Chronicles alone for our knowledge of Uzziah's greatness, it is impossible to maintain an unbroken confidence in the critical estimate of these books. In any case, this account of Uzziah's warlike preparations and achievements, which was part of the supposed exaggerations of the chronicler, now takes its place as sober history.

Confirmation has also come from other sides. "We may," writes Professor Sayce, "consider the notices by the chronicler of nations whose names are not mentioned in the Books of Kings as worthy of full credit. Even the Meunims, of whom Uzziah is said to have been the conqueror, have had light cast

* *The Old Testament in the Light of the Historical Records*, etc., p. 348.

† Vol. i, p. 245.

upon them by oriental archæology. Professor Hommel and Dr. Glaser see in them the Mineans of Southern Arabia, whose power extended at one time as far north as Gaza . . . As the power of the Mineans waned before that of Saba, or Sheba, any notice of their presence on the borders of Palestine must go back to a considerable antiquity. If, therefore, their identification with the Mehunims of the chronicler is correct, the reference to them bears the stamp of contemporaneous authority.*

Researches and excavations in Palestine have further illustrated the minute accuracy of Chronicles. These books describe Hezekiah's preparations for meeting the Assyrian invasion under Sennacherib. "He took counsel," we are told, "with his princes and his mighty men, to stop (or conceal) the waters of the fountains which were without the city: and they did help him . . . This same Hezekiah also stopped (or concealed) the upper water-course of Gihon, and brought it straight down to the west side of the city of David" (2 Chron. xxxii, 3, 30). Subterranean channels and tunnels have been found which show that work of this very kind was done; and it was done with engineering knowledge and skill that astonish us.† A further trace of this great work was found in an inscription discovered in 1880, in what Professor Sayce believes to be Hezekiah's tunnel. It is as follows:—"Behold the) excavation. Now this is the history of the excavation. While the excavators were still lifting up the pick, each toward his neighbour, and while there were yet three cubits to (excavate), there was heard the voice of one man calling to his neighbour, for there was an *excess* (?) of the rock on the right hand (and on the left?). And after that on the day of excavating the excavators had struck pick against pick, one against another, the waters flowed from the spring to the pool for a distance of 1,200 cubits. And (part) of a cubit was the height of the rock over the head of the excavators."‡

The same minute accuracy is displayed in a passage which was set aside by criticism as apocryphal. In 2 Chron. xxxiii, 10-13, we read, "And the Lord spake to Manasse and to his people; but they would not hearken. Wherefore the Lord

* *The Higher Criticism and the Monuments*, p. 468.

† See Harper, *The Bible and Modern Discoveries*, pp. 515-519; and King, *Recent Discoveries on the Temple Hill*, pp. 141-148. E. Hull, "Scripture Illustrated and Confirmed by Recent Discoveries," *Trans. Vict. Inst.*, vol. xxviii, p. 136 (1894).

‡ *Records of the Past* (New Series), vol. i, pp. 174-175.

brought upon them the captains of the king of Assyria who took Manasseh among the thorns, and bound him with fetters, and carried him to Babylon. And when he was in affliction, he besought the Lord his God, and humbled himself greatly before the God of his fathers, and prayed unto Him, and he was intreated of Him, and heard his supplication, and brought him again to Jerusalem into his kingdom." "The reader is aware," says Schrader in his reference to the above, "that this passage has been the subject of much discussion. Objections were raised by the critics to a statement which had no place in the Book of Kings, and it was thought that this passage should be severed from the narrative, as being altogether unhistorical.* One ground upon which that conclusion was based, was the belief that in Manasseh's time (697-641 B.C.) there was no connection between Assyria and Judah. This has been shown to be a delusion. Esarhaddon (681-668 B.C.) conquered the whole of Syria and Egypt towards the close of his reign; and in the list of tributary kings, he gives the name of *Minassar mat Jaudi*, that is, "Manasseh king of the country of Judah." This king is also mentioned in the same way by Assurbanipal (668-626 B.C.). This last known king of Assyria tells how news was brought to him of Tirhakah's invasion of Egypt. "Over these things," he says, "my heart was bitter and much afflicted. By the command of Assur and the goddess Assuritu, I gathered my powerful forces, which Assur and Ishtar had placed in my hands; to Egypt and Ethiopia I directed the march. In the course of my expedition, twenty-two kings of the side of the sea and middle of the sea, all tributaries dependent upon me, to my presence came and kissed my feet."† In a supplementary inscription, Assurbanipal names these tributary kings, and "Manasseh, king of Judah," is on the list. Manasseh, therefore, had the long reign attributed to him, extending from the time of Sennacherib to the days of Assurbanipal. It also follows that, in Manasseh's reign, the hold of Assyria upon Judah was firm and continuous.

There are five other points in regard to which the inscriptions furnish welcome information. (1) The Scripture narrative plainly implies that Manasseh, described by both Esarhaddon and his son as a faithful tributary of Assyria, rebels at the end of his reign. About that very time a widespread conspiracy was organised by a brother of Assurbanipal. An inscription of

* *Cuneiform Inscriptions*, etc., vol ii, p. 53.

† Geo. Smith, *Assyrian Discoveries*, p. 317.

the latter speaks of the rebellion in the following terms :—"The people of Akkad, Chaldeia, Aram and the sea-coast, from Agaba to Balsalimitu, tributaries dependent on me, he caused to revolt against my hand . . . And the kings of Goim, Syria, and Ethiopia . . . all of them he caused to rebel, and with him they set their faces."* This reference to "Syria and Ethiopia" shows that the conspiracy had spread over the west of the empire as well, and must have involved Palestine in the vengeance which followed. Ptolemy's Canon shows that Assurbanipal became King of Babylon, after the overthrow of his brother, in 647 B.C. This was four years before the death of Manasseh, who began to reign in 698 B.C., and, after a reign of fifty-five years, died in 643 B.C. It will thus be seen that the facts and dates tally completely with the Scripture account.

(2) The phrase (verse 11), "the captains of the host of the king of Assyria," attracts attention. It is unusual, and seems plainly to imply that in this instance the king was not present with his army, and also that he had delegated his authority not to one individual but to several. It is now known that it was not Assurbanipal's custom to go personally upon campaign; but he himself has shed light upon the above phrase in an inscription describing that very western expedition. Referring to Hazael, the king of Kedar, he says: "My army which on the border of his country was stationed, I sent against him. His overthrow they accomplished."† Here the king speaks of sending, and not of leading, his army. He is plainly not personally in command of the forces. The words, "His overthrow *they* accomplished," present a remarkable parallel to those of the Scripture: "The captains of the host of the king of Assyria."

(3) We are told that Manasseh was taken "among the thorns." We are now enabled to understand the circumstances of the Jewish king's removal as our translators could not do. The passage tells us that he was taken with hooks or rings. The reference is to the Assyrian and Babylonian practice of putting a ring or hook in the captive's upper or under lip, attaching a cord to it, and leading the prisoner along, an object of pity to his friends and of ridicule to his foes. Here we have an undoubted Assyrian trait, the description of which later times were unable to understand. We have also Assurbanipal's own assurance that the practice had continued to his own times. In

* *Records of the Past*, vol. i, p. 76.

† *Ibid.*, vol. ix, pp. 61, 62

an inscription translated by M. Alfred Boissier, he says, referring to an Arabian king: "With the knife which I use to cut meat I made a hole in his jaw. I passed a ring through his upper lip. I attached to it a chain with which one leads the dogs in leash."*

(4) The statement that Manasseh was taken to *Babylon* was fastened upon as an indication that the book was written at a time when it was no longer known that Nineveh, and not Babylon, was the capital of the Assyrian empire. A former high authority, Dr. Samuel Davidson, says of this passage in his *Introduction to the Old Testament*: "It is related that the king of Assyria took Manasseh to *Babylon*, instead of to his own capital, to the very city which was disposed to rebel against him! That is improbable." He explains the supposed "error" as a reflection of the later statements regarding the carrying away of Jehoiachin and of Zedekiah to Babylon. These, he says, "furnished a pattern for the alleged event." But in this Davidson was completely mistaken. Babylon was not then disposed to rebel against Assurbanipal. The city had been captured, and the rebellion had been ruthlessly suppressed. And from that time onward, Assurbanipal assumed the sovereignty of Babylon. It was in strict agreement, therefore, with the events of the time that Manasseh should have been taken to Babylon where the head of the revolt had been crushed, and where Assurbanipal was re-establishing his sway.

(5) Another seemingly unhistorical event is the return of Manasseh to Jerusalem as king. The Scripture tells us that this change in Manasseh's fortunes was due to repentance and earnest prayer. This evident intention, to make that event commend a return to God and trust in the Divine mercy, was perhaps enough to beget suspicion in certain minds. But, though we have as yet no direct confirmation of the Jewish king's release, we know that the act was entirely in accord with Assurbanipal's practice. Speaking of a king, evidently in the same district, he says: "I restored and favoured him. The towers which over against Babel, king of Tyre, I had raised, I pulled down: on sea and land all his roads which I had taken I opened."† There is also a record extant of an exactly similar exhibition of mercy by this king. The territory of Egypt had been divided by him among a number of Egyptian nobles whom he had vested with sovereign power. They revolted, and

* *Proceedings of the Society of Biblical Archaeology*, vol. xx p. 163.

† *Records of the Past*, vol. ix, p. 40.

Assurbanipal tells what followed. "These kings," he says, "who had devised evil against the army of Assyria, alive to Nineveh, into my presence they brought. To Necho . . . of them, favour I granted him, . . . costly garments I placed upon him, ornaments of gold, his royal image I made for him, bracelets of gold I fastened on his limbs, a steel sword, its sheath of gold, in the glory of my name, more than I write, I gave him. Chariots, horses and mules, for his royal riding I appointed him. My generals as governors to assist with him I sent," etc.* Manassch's restoration was accordingly in keeping with Assurbanipal's policy; and no historical statement has ever had a more triumphant vindication than that which the monuments have thus brought to this assailed portion of Scripture. In view also of this and of the preceding confirmations it will be evident that the Book of Chronicles were written, not in ignorance, but with full and accurate knowledge of the times with which they deal.

2. *Daniel*.—The Book of Daniel deals so largely with contemporary history that we include it among the historical Books of the Old Testament, notwithstanding the prophetic character which pervades even its historic parts. There is also another reason why it should be touched upon in this connection. Recent oriental research has confirmed so many of its statements and references that silence on our part would be inexplicable. There has also been no Book in the Old Testament Canon which has been more unsparingly condemned by criticism than this. The accepted account of it is that it is a Jewish romance composed about 168 or 164 B.C., that is, nearly four centuries after Daniel had passed away.

The question as to the authenticity of the Book is supposed to be finally disposed of by one circumstance. In the third chapter an account is given of a great Babylonian state ceremony; and in this connection six musical instruments are named. These names were claimed as Greek words, and were said to form an absolute proof that the Book must have been written subsequent to the time of Alexander the Great. It was pointed out that a mistake had been made in regard to one of the names (*Sambuke*). Two Greek authors, Athenæus and Strabo, state that this instrument had been brought from Syria into Greece. It is probable, however, that two, if not three, of the six names are Greek; and, speaking of this fact, a critical authority says: "These words, it may be confidently affirmed,

* Geo. Smith, *Assyrian Discoveries*, pp. 325-327.

could not have been used in the Book of Daniel, unless it had been written *after the dissemination of Greek influence in Asia through the conquests of Alexander the Great.*"*

The importance of a point like that must not be judged by its seeming insignificance. It is just the kind of slip which a late writer is almost certain to make at some point in a narrative professedly written in an earlier period; and, if it were certain that no Greek instrument had entered Babylonia till the days of Alexander the Great (332 B.C.), the presence of these words in the Book would be fatal to its claims. But in that contention criticism has been more than usually unfortunate. The Book of Daniel was written about 536 B.C. Professor Flinders Petrie has excavated the remains of the Egyptian cities of Naucratis and Daphnæ, or Tahpanhes, which were inhabited by 30,000 Greek troops about 665 B.C.—130 years before Daniel was written. And seeing that there was constant commercial intercourse between Babylonia and the west, here was a channel by which Greek instruments could have reached Babylon long before 536 B.C. This conclusion is thus forcibly stated by Dr. Petrie. He says: "We cannot doubt that Tahpanhes—the first place on the road to Egypt—was a constant refuge for the Jews during the series of Assyrian invasions: especially as they met here, not the exclusive Egyptians, but a mixed foreign population, mostly Greeks. Here, then, was a ready source for the introduction of Greek words and names into Hebrew long before the Alexandrian age; and even before the fall of Jerusalem the Greek names of musical instruments and other words may have been heard in the courts of Solomon's temple."†

A difficulty, which bulked more largely than the above, was the place assigned to "Belshazzar." That monarch is represented as the last of the Babylonian kings, and as meeting his death on the night when the palace of Babylon was captured by the troops of Cyrus. Apparently, however, no king of the name was known to the ancient writers who allude to this portion of Babylonian history. They name the last king Nabonadius or Nabonidus. The monuments confirmed their account by showing that this monarch was named Nabonahid. The case against Daniel thus assumed a graver aspect; for it was plainly impossible to assume that Belshazzar was only another name by which Nabonahid was known to his contemporaries. The events

* Dr. Driver, *Introduction*, etc., p. 471. The italics are Dr. Driver's.

† *Ten Years' Digging in Egypt*.

recorded in the life of Belshazzar had no place in that of Nabonahid. The latter did not die when the palace was taken. He was not in Babylon at all when it was captured; and he lived for years after the Persian dominion had superseded the Babylonian.

The first ray of light came from an inscription discovered in the ruins of a temple at Mugheir. It was an account by Nabonahid of his restoration of this temple of Sin, the Moon-god, and contained the following words: "As for me, Nabonidus, king of Babylon, from sin against thy great divinity save me, and a life of remote days give as a gift; and as for Belshazzar, the eldest son, the offspring of my heart, the fear of thy great divinity cause thou to exist in his heart, and let not sin possess him, let him be satisfied with fulness of life."* This places it beyond question that Belshazzar was a personage of the time, and that he was the heir to the Babylonian throne. But it is contended that he never reigned. The inscriptions of Cyrus, however, leave no doubt that Belshazzar, "the king's son," played a great part in the closing days of the Babylonian monarchy. He appears to have been in command of the main army upon which the Babylonians were building their hopes of safety. He had with him "the Queen," the wife of Nabonidus, and the nobles of the empire. That great position forms a strong presumption that Belshazzar shared the throne with his father. But another discovery carries us further. A contract tablet belonging to this period is dated in the third year of a king called "Marduk-sar-nzar." It records "the sale of a field of corn by a person named *Ahi-iltaspi*, son of a man called *Nabu-malik*, to Idina-Marduk, son of Basa, son of Nursin, a partner in the Egibi firm."† This Egibi firm was one whose transactions extended over a long period, and whose documents, now happily recovered, have greatly illuminated this portion of Babylonian history. The names of the witnesses to that special transaction show that the sale must have occurred about this very time. But there was no king of that name. The only explanation, as Mr. Boscawen points out, seems to be that "Marduk" is only another name for Bel, and is here substituted for it. Marduk-sar-uzur is consequently Belshazzar. It will be remembered that one of Daniel's visions (viii, 1) is dated in this same "third year" of Belshazzar's reign.

* Pinches, *The Old Testament in the Light of the Historical Records, etc.*, p. 414.

† Boscawen, *Transactions of the Society of Biblical Archaeology*, vii, pp. 27-28.

Other references in the Book, such as that to the existence of the Palace School (a peculiarly Assyrian and Babylonian institution) in the first chapter; to the articles of Babylonian apparel, and the place assigned to music in Babylonian state ceremonial in the third chapter, are inexplicable on the supposition that the author lived in a time when the Babylonian civilisation had long been a thing of the past. No mere romance could have had the illustration and confirmation which recent discoveries have brought to this part of Scripture.

3. *Samuel and Kings*.—We now come to the important Books of Samuel and Kings. The earlier tendency of criticism was to accept these as largely historical; but later views have minimised that admission. The Books are now regarded, not as a history, but as an exposition of the author's views illustrated by supposed historical events. "It is not surprising," says *The New International Encyclopedia* in the article on the Books of Samuel, "to find incidents introduced which are intended to illustrate the narrator's conceptions of Israel's past. . . . The scene, therefore, between Samuel and the people, in which he rebukes them for desiring a king (1 Sam. viii, 10-18), may contain but a slight historical kernel, or even be a purely fanciful elaboration. . . . Many scholars . . . believe that legendary embellishments form a factor in many of the other incidents related of him." A similar design is said to pervade the Books of Kings. All disasters, we are told, are regarded as punishments. "It is therefore necessary," concludes the writer, "before utilising the valuable material embodied in Samuel and Kings to make due allowance for this theory, and to distinguish carefully between facts and the interpretation put upon them. In the second place the careers of the favourite heroes—notably David and Solomon—have been embellished with legends," etc. That is an accurate summary of current theories. The *Encyclopædia Biblica* believes that Eli's sons were invented. "Eli's sons," remarks the writer, "do not appear to have entered into the original tradition; they are only introduced in the interests of the later theory." Referring to the history of 'Elijah' and Elisha, which forms more than one-fourth of the contents of the two Books of Kings, *Hastings' Bible Dictionary* says: "Like other historical parts of the Old Testament, they may have lived in the mouths of the people for generations, forming a powerful means of religious education, before they were committed to writing." The "history," therefore, occupies no higher level than legend and popular tradition.

Fortunately we are now able to compare those theories with the results of recent investigation. For a large portion of the time covered by these Books, the Israelites were in contact with nationalities on the East and on the West whose records have been recovered and read. Those records and the Biblical Books occasionally refer to the same circumstances and narrate the same facts. If the Scripture, therefore, invents narratives, or alters history "to point a moral or adorn a tale," this will infallibly appear in the comparison of the Biblical and monumental accounts. Let it be observed also that it will not be necessary to procure a companion narrative for every Biblical account in order to reach an assured judgment as to the character of the Scripture history. Half-a-dozen test cases will form as good a basis as six hundred. Those six narratives will either prove that the current theory is correct, or they will make it plain that that theory must be abandoned.

Following our usual plan and passing upward along the stream of history, we look first at the light which discovery has cast upon the character of 2 Kings. That Book begins with the statement that "Moab rebelled against Israel after the death of Ahab" (2 Kings i, 1). Further information is imparted in iii, 4-27. The Moabite king's name was Mesha. He had paid an annual tribute of "an hundred thousand lambs and an hundred thousand rams with the wool." The narrative proceeds to say that an attempt was made by Ahab's son to reimpose the Israelitish yoke; that he called to his aid his allies, the kings of Judah and Edom; that the Moabites attacked this army and were defeated; that the victorious Israelites pursued them, captured their cities, and shut up Mesha in his capital; that there he was so hard bested that he offered his eldest son a sacrifice upon the wall in the sight of the besiegers; and finally, that this act led to such indignation against Israel, apparently because of its insatiable thirst for vengeance, that the confederacy was broken up and Mesha escaped.

These Scripture references to the Moabites have been so thoroughly vindicated by research that archaeologists, the only "authorities" in a matter of this kind, have had to abandon the critical theory. Alfred Jeremias sums up the present position in the words, "History lays a Moabite-Ammonite *Saga* in the dust;"* while in regard to the Mesha episode and the discovery of that king's inscription he quotes the admission of

* *Das Alte Testament im Lichte des Alten Orients*, S. 228.

Winckler; "Mesha's statements fully accord in every point with those of the Bible," and adds, "certainly a weighty testimony for the reliability of the Biblical historical sources!"* The recovery of "the Moabite stone" has proved that the narrative in Kings must now be accepted as fully informed and minutely accurate history. The stone contains 32 lines which can be read and a number so mutilated that no translation of them can be ventured. But the portion still legible informs us that Moab had been subjected by Omri, the father of Ahab; that the subjection lasted 40 years, a period which corresponds exactly with that indicated in the Scripture; that the deliverance of himself and of his kingdom was realised in a time of invasion, and that it came about in so marvellous a fashion that he calls the stone "a monument of salvation" to Chemosh, "for he saved me from all invaders, and let me see my desire upon my enemies." He then recounts his rebuilding of his cities, the capture of others from the Israelitish garrisons, and the re-peopling of the land. The Scripture account is thus upheld in every detail. Nothing has been invented: nothing has been manipulated. The inscription has also proved the great antiquity of the Hebrew writing. The angular form of the letters shows, as Professor Sayce remarks, that the writing had long been used by the Moabites for monumental purposes.† The language also proves that the affiliation of Moab and Israel was a fact. "Between it and the Hebrew," says the same writer,‡ "the differences are few and slight. It is a proof that the Moabites were akin to the Israelites in language as well as in race."

A more famous incident is Sennacherib's invasion of Judah in the days of Hezekiah. We are told that at the outset everything went in the invader's favour. The Assyrian king captured all the fortified cities of the country with the exception of the capital (2 Kings xviii, 13-16). Hezekiah did not attempt to prolong so unequal a struggle. He sent an embassy to Sennacherib at Lachish with the message, "I have offended, return from me: that which thou putteth on me I will bear. And the king of Assyria appointed unto Hezekiah king of Judah 300 talents of silver and 30 talents of gold." Sennacherib himself has confirmed that account. There had been a rising in the West against the Assyrian yoke in which

* *Das Alte Testament im Lichte des Alten Orients*, S. 318.

† *The Higher Criticism and the Monuments*, p. 387.

‡ *Ibid.*, p. 373. For fuller account of the Moabite stone see *Trans. Vict. Inst.*, vol. xxviii, p. 134 (1894).

Hezekiah appears to have shared. Sennacherib tells how it was suppressed, and says, "And as for Hazaqian (Hezekiah) of the land of the Yaudâa (the Jews), who had not submitted to my yoke, forty-six of his strong cities, fortresses, and small towns which were round them, which were innumerable . . . I besieged and captured." He then speaks of the siege of Jerusalem itself, apparently mixing up intentionally a later and unsuccessful attempt with the tribute which Hezekiah paid him. That tribute is said to have been 30 talents of gold and 800 talents of silver along with a number of things which are not mentioned in the Scripture account, but which no doubt formed part of the treasure sent to the Assyrian king. The siege, the Scripture tells us, was resolved upon afterwards and had to be raised. Sennacherib confirms that account by his silence. He does not take the city. He does not lead away captives from it. He punishes neither the king nor his nobles. Sennacherib, in another inscription, indicates his plea for the expedition against Jerusalem. He says, "He himself, like a bird in a cage, inside Jerusalem his royal city I shut him up; siege towers against him I constructed, for he had given command to renew the bulwarks of the great gate of his city."* Hezekiah had in this way given fresh offence to his powerful and overbearing foe.

A discrepancy apparently exists between the two accounts of the tribute. The Assyrian, while agreeing with the Scripture narrative in regard to the weight of the gold, speaks of a much larger silver tribute—800 talents instead of 300. This long formed a serious difficulty, but is now cleared away. The Hebrew silver talent was heavier than the Assyrian, in the proportion of 8 to 3, so that the 800 of the one account is the exact equivalent of the 300 of the other.† From the above one conclusion alone can be drawn. There is absolutely no trace of legend or of the distortions of tradition in the Biblical account. It is as well informed and as accurate as the Assyrian; and it is absolutely free from the vainglorious boastfulness which permeates and mars the great king's inscriptions.

A small detail illustrates the exactitude of the Scripture references. We are told that Hezekiah sent his tribute to Sennacherib at Lachish, a city to the south-west of Jerusalem which lay upon the Assyrian king's way to Egypt. There are various other Scripture references to his siege of that city; but

* *Records of the Past*, vol. i, pp. 40, 41.

† See Evetts, *New Light on the Bible*, p. 347.

in this inscription of Sennacherib's there is no mention of the siege. In view of the importance of the place an omission of that sort seems exceeding strange, and an inference might have been drawn that these Bible statements at least were unhistorical. But Layard discovered upon the walls of Sennacherib's palace at Nineveh sculptured slabs representing the siege of a large city in active progress. On one of the slabs the king is seen enthroned and a procession of captives proceeding towards him from the gate of the city. Over the king's head stands the following inscription: "Sennacherib, king of nations, king of Assyria, sitting on the throne, causes the spoils of the city of Lachish to pass before him."*

We are also enabled to test the value of the statements which are made so freely regarding the alleged mythical character of that part of Kings which records the history of Elijah and Elisha. Long ago De Wette maintained that "the whole story of Elijah and Elisha is derived, directly or indirectly, from legends of the people or of the schools of the prophets"; and again, "The Book contains numerous mythical passages. In some of them the mythical portion is very conspicuous. Such are . . . the story of Elijah. . . . The continuation and conclusion of the history of Elijah and his successor are filled with mythical narrative."† This may be taken as representative of critical opinion. Now, in one of these supposed myths, we find a siege of Samaria pressed by Benhadad king of Syria (2 Kings vi, 24); and we are told that the siege was raised through an alarm which seized upon the Syrian army that the Israelites had hired against them "the kings of the Hittites and the kings of the Egyptians," and that these were then rushing against them (vii, 6). This incidental reference was regarded for a long time as sustaining the critical charges. The Scripture makes frequent references to the Hittites. But who were they? Where was their location? And what had they achieved? The utter silence of history regarding the Hittite was held to be eloquent; for the silence was said to be inexplicable if the Hittites had played the part which the Bible assigns to them. Professor Sayce, referring to this passage, writes that the critics held the reference to the Hittites "to be an error or an invention; but it was only the ignorance of the critic himself that was at fault!" But even so willing and capable a defender of Scripture as Keil could

* Maspero, *Histoire Ancienne des Peuples de l'Orient*, p. 408.

† *Introduction to the O.T.*, vol. ii, 184.

only say that we must not make it responsible for the utterances of the Syrians. "The Syrians speak," he said, "not of the historically certain, but from a mere conjecture founded upon the noise heard."*

The discovery of the Hittite dominion is part of the romance of Eastern archaeology. Theirs was a great, though a long-forgotten, Empire; and the Scripture references to them have been amply substantiated. This takes its place among the number. About 40 years after this time Shalmaneser II. of Assyria encountered their hosts in battle. Two of his Western adversaries, he tells us in one of his inscriptions, engaged the assistance of "the kings of the Hittites," and marched against Assyria "trusting in each other's might." It will be observed how closely this tallies with the reference in 2 Kings. The Hittites were at that time a great Eastern power: they were able to be "hired": and they were governed not by one monarch only, for Shalmaneser I. uses the very phrase of the Scripture—"the kings of the Hittites." But what of the sister phrase—"the kings of the Egyptians"? Was that monarchy also broken up into sections? The reply is in the affirmative. The great Shishak, or Sheshonq, or Sheshenk, was unfortunate in his successors. Maspero explains that they divided the kingdom into great principalities so as to govern the land with greater ease. Some of these "comprised only a few towns, while others stretched over several contiguous nomes." The result might have been foreseen. The great potentates thus created gradually became sovereigns in their respective domains. "Soon," says Maspero, "the masters of these principalities grew bold enough to reject the sovereignty of the Pharaoh. . . . They usurped not only the functions of royalty, but also the title of king, while the legitimate dynasty, confined to a corner of the Delta, exercised there hardly a remnant of authority."† That was the condition of Egypt at this time, so that the reference to "the kings of Egypt" is equally exact with that to "the kings of the Hittites." Tested by these things, the Elijah-Elisha narrative shows nothing of the well-known lineaments of legend, but displays, on the contrary, the usual features of history.

The researches of the Palestine Exploration Fund have thrown a flood of light upon the opening chapters of 1 Kings. As is well-known, criticism believes that we have no really

* See his Commentary.

† *Records of the Past*, vol. i, pp. 35, 36.

historical information regarding Israel until we reach the eighth century B.C. It is at that period that Kuenen, for example, begins his account of "The Religion of Israel." Whatever of so-called history goes back to an earlier time is set down as undoubted tradition, and the splendours assigned to the period of Solomon are largely due, we are told, to the calamities which the Israel of the narrator's time was compelled to endure. Now nothing in the history of 1 Kings is invested with such splendour as the construction of Solomon's Temple. But the magnificence of that structure has been demonstrated by the researches of Warren and others. The greatest care was exercised, for example, in regard to the foundations of the Temple. The rock at one corner (the south-east) consists of soft stone. This has been cut away, and the foundation stones rest upon the hard rock beneath. That rock was struck at what Mr. King well calls "the enormous depth" of over 73 feet below the present surface.* Another speaks of the excavations as "astounding us by the stupendous nature and extent of the masonry."† We read in 1 Kings v, 17, that "the king commanded and they brought great stones, costly stones, to lay the foundation of the house." This also has been confirmed. At one portion of the walls, part of the second Temple, Herod's work, rests upon a substructure belonging to the first Temple. Though the upper portion consists of large stones and excellent masonry, these are utterly eclipsed by what lies beneath. Here the stones, says Mr. King, "are magnificent blocks, with clean-cut marginal drafts and finely dressed faces." And again: "The corner stone of the Great Course at the south-east angle is a gigantic block, twenty-six feet long, over six feet high and seven feet wide. . . . This colossal stone . . . weighs over a hundred tons, and is, therefore, the heaviest, though not the longest, stone visible in the sanctuary wall." The stones were also "costly" both in their material and in their workmanship. "The Temple of Solomon was built," says Warren, "of the beautiful white stone of the country, the hard *nissae*, which will bear a considerable amount of polish." He also speaks of "the marvellous joints of the Sanctuary wall stones." These are further described by Mr. King. He says that the joints are so finely worked that they are scarcely discernible. "The blade of a knife," he adds, "can scarcely be thrust in between them." Here, then, 1 Kings has given us an exact description,

* *Recent Discoveries on the Temple Hill.*

† *Recovery of Jerusalem*, p. 399.

and "legendary amplifications" are conspicuous by their absence.

Other details have had a like vindication. We are told that "the house was built of stone made ready before it was brought thither, so that there was neither hammer, nor axe, nor any tool of iron heard in the house while it was in building" (1 Kings vi, 7). That is, the stones were prepared and fitted for their places in the quarries. An indication that such was the case is seen in the large vermillion letters and stone marks which the underground blocks still bear. A wet finger is sufficient to obliterate them, and doubtless they were thus removed from the building that was above ground. Those marks no doubt showed the builders where the stones were to be placed, a precaution which would have been unnecessary had the stones been prepared at the Temple site. We are also told that "Solomon's builders and Hiram's builders did hew the stones" (v, 18). Were those marks, then, such as would be used by Syrian, that is, Phœnician, builders? The late Emmanuel Deutsch, after an elaborate inquiry, replies: "*They are Phœnician* . . . Some of them were recognisable at once as well-known Phœnician characters; others, hitherto unknown in Phœnician epigraphy, I had the rare satisfaction of being able to identify on absolutely undoubted antique Phœnician structures in Syria, such as the primitive substructures of the harbour at Sidon."

Samuel.—A significant mark of the antiquity of the Books of Samuel is found in the name of that prophet. "Samuel," as a Hebrew word, was an enigma to scholars. Almost all the attempts to explain it were wrecked against one or other of those two middle letters *m* and *n*. The explanation to which least objection could be raised was "heard-of-God." But with that interpretation no account could be given of the absence from the name of another letter, the Hebrew *Ayin*. The ancient Assyrian tongue shows us that an old Semitic word for "son" was *sumu* in Assyrian, which is no doubt represented by the first two syllables of the prophet's name. *Sumu-el*, or *Samu-el*, means, then, "God's son." Hannah thus registered, in the name given to her child, her vow that he should be the Lord's.

The exploration of Palestine has resulted in the discovery of ancient sites, which compel the conviction that these Books set before us actual incidents and not the creations of legend or the embellishments of tradition. After recording a number of those identifications, Colonel Conder speaks of "the exactitude of this topography," and says that David's wanderings can now

be traced by aid of the new discoveries of places like Adullam, Hareth, etc., not previously known.* That a narrative should be illuminated by such discoveries is one of the most satisfactory marks of historicity. In the eighth chapter of 2 Samuel, we have an account of David's conquests. He subdued the countries on all sides, and carried his arms even to the Euphrates (verse 4). That is a representation which a romancer might have found to be extremely perilous. We are now able to follow the movements of the great empires on the east and the west of Palestine into times much more remote than those of David; and it might have happened that the recorded conquests of either would have made belief in David's extended dominion impossible. But in this instance also the records of Assyria and of Egypt are in perfect agreement with the Scripture. David's reign extended from 1018 to 978 B.C. About 1100 B.C. Tiglath-Pileser I. of Assyria was defeated by the Babylonians; and for more than a century and a half afterwards Assyria ceased to be the dominating power which she had formerly been, and which she afterwards again became, in Mesopotamia. On the western side, Egypt was in the midst of a long period of decline. "The XIXth Dynasty," says Budge, "marks the beginning of the decline of the power of Egypt; and the decline continued without break until the end of the period of the XXIst Dynasty, by which time Egypt had become like the 'bruised reed' to which she was compared in Holy Scriptures; this period of decline lasted about three hundred years. . . . In the XXIst Dynasty not only do we find Egypt confined to the valley of the Nile, but even divided into two separate kingdoms of the South and the North, as in the days of the Hyksos seven hundred years before."† David's reign belongs to the period of the XXIst Dynasty. There was, therefore, a broad field for the achievements of the great hero-king of Israel; and the Scripture narrative is thus confirmed and explained by the records of the great Empires of the East and of the West.

Judges.—The earlier critics were inclined to attach a higher historical value to the Book of Judges than is accorded to it by their successors. Dr. Driver, while admitting that it contains a large basis of fact, finds "embellishments," "exaggerations," and "expansions" in the Book; and adds: "The original narrative has been combined with the additions in such a manner that it cannot be disengaged with certainty, and is now, in all

* *The Bible and the East*, p. 142.

† *History of Egypt*, vi, pp. 32, 33.

probability, as Kuenen observes, not recoverable.* The writer on *Judges* in *Hastings' Bible Dictionary* says: "Many details have been referred, with more or less probability, to myth or misunderstanding, and not to history. Cushan Rishathaim of Mesopotamia is a shadowy and uncertain figure." The latter reference is unfortunate. "Mesopotamia" is in the original Hebrew, "Aram-Naharaim," or "Syria of the two rivers." This king is said to have pushed his conquest westward into Palestine, and to have held the Israelites in subjection for eight years (*Judges* iii, 8). The ancient history of those lands is being slowly discovered, through the references to them in the inscriptions of Assyria and of Egypt; but enough is now known to show how dangerous it is to trust to a merely literary analysis in historical matters. Aram-Naharaim appears on the Egyptian monuments as Naharina. The district was situated in the north of Syria, between the river Orontes and the river Balikh. The Euphrates flowed through the midst of the country. On the north-east of Naharina lay the kingdom of Mitanni. Just at this time Mitanni had been combined in some way with Naharina. "The Mitanni," says Maspero, "exercised a sort of hegemony over the whole of Naharina."

Naharina was a populous country. It was conquered by Thotmes III. His monument at Thebes records the names of 230 towns, and about another hundred names have been effaced. Some reigns later, the references on the monuments show that Tushratta, the King of the Mitanni, who is named by the Egyptians King of Naharina, is a valued ally of Egypt. The letters sent from Palestine to Kings Amenophis III. and IV., which were discovered at Tel-el-Amarna, show that a quarrel arose between the two kingdoms. The last contains what seems to be Tushratta's ultimatum. This rupture apparently led to an invasion of Palestine, whose coast-tribes acknowledged the Egyptian supremacy, and in this campaign the Israelites were evidently conquered. In any case, the kingdom of Naharina was then in existence. It had, as Carl Niebuhr says, a wide dominion, "extending from south-eastern Cappadocia to beyond the later Assyrian capital, Nineveh."† And Naharina was, at this very time, on the eve of an invasion of the west. Between these facts and the statements in *Judges* the agreement is so striking that comment is needless.

The letters discovered at Tel-el-Amarna have a further, and

* *Introduction*, p. 160.

† *The Tel-el-Amarna Period*, p. 27.

still more important bearing upon the questions now raised concerning this Book. They make frequent mention of a people named the *Khabori*, or *Habori*. These people are all over the land, and are daily extending their ravages. They spare none. They are called "men of blood," and are regarded as enemies of the gods. The suggestion that these were the Hebrews was at first set aside by Assyriologists, but is now being received into favour. "By the *Habori*," says Carl Niebuhr, "we must here understand no other than the Hebrews."* This finally disposes of the widely-accepted recognition of Rameses II. (of the XIXth Dynasty) as the Pharaoh of the oppression and of Minephtah, his son, as the Pharaoh of the Exodus—an opinion retained in spite of the references of Rameses and of his father Seti I. to the tribe of Asher as resident in Palestine, and to Minephtah's own reference to the Israelites as already settled in Canaan. Viewed in this light, these contemporaneous letters show us the Israelites extending their conquests just as they are represented to have done in Judges.

The Pentateuch.—We come now, in conclusion, to the opening Books of the Bible. Upon the age and the historical character of the Pentateuch, German and other criticism has concentrated its powers of analysis. The result has been an elaborate scheme, by which the Books of Moses have been separated into sections, sometimes long, sometimes so brief as to consist of one or two words, and at times of only one word. These are said to have been drawn from the works of, or to have been inserted by, certain writers or schools of writers, often separated from each other by long intervals of time. The one broad conclusion which has been impressed upon the public mind by those elaborate works, is that the Books were in no sense the work of Moses; that little or nothing of them existed in his time; and that the great body of the laws and of the history came into existence only in the fifth or fourth century B.C. The representation, in a word, is that this alleged history is not history; and that it is at best a very late composition of dressed-up myths, legends, and traditions, with amplifications and additions which reveal the tendencies and the character of the writers' times, but which are of little other value. That is the account which is at present widely accepted. The frequent formula, "The Lord said unto Moses" (we are informed in a work intended for popular use) "is mainly the attribution to Jehovah of every law and regulation, every plan and purpose of ruler and teacher,

* *The Tel-el-Amarna Period*, p. 46.

every appeal, threat, and promise of reformer and prophet, that has imposed its authority so long. . . . It is generally admitted now that what are called the Books of Moses were largely made up after Moses' day, chiefly about the time of the restoration from Babylonian exile,"* etc. The papers, from which the above extracts are made, first appeared some years ago in the Sunday edition of the *New York Times*, and may be accepted as a frank and fairly accurate statement of the teaching of the more learned works to which I have referred.

As a party to this discussion, oriental discovery has the highest claims to be heard. It has brought back the times, and in some cases the very personages, of which the Books of Moses speak. It has enabled us to see the countries and the peoples as they then existed. We read inscriptions which were then being chiselled upon the walls of temples, palaces, and tombs, or upon pillars and statues. We mark the speech, the manners and customs of the living peoples. We march with their armies; we encounter them in their streets; we enter with them into their homes; we become their guests; we breathe with them the atmosphere of the place and of the time. Surely, then, when questions arise as to what is or is not possible to those times, as to what belongs to them or does not belong to them, we also have a voice in the discussion, and some part in the shaping of the conclusion in which the discussion shall be summed up.

There is one most important fact which has emerged in the process of Egyptological discovery. The Pentateuch is distinguished from the rest of the Hebrew Bible by the presence in it of a considerable number of undoubted Egyptian words. In addition to these we find also Egyptian names, which were given because they have certain significations, as in the case of Joseph and of the sons of Moses. In the opening books of the New Testament we have a parallel to this peculiarity of the opening books of the Old Testament. Hebrew words are transferred into Greek in the Gospels; but, in this latter case, the Hebrew words are explained to the Greek readers of the Gospels. The reason is plain. Those Greek readers, for whom the Gospels were first written, were not supposed to be, and in the great majority of cases could not have been, acquainted with Hebrew. But in the Pentateuch such explanations are entirely wanting, and almost all of them had to be waited for until oriental research

* Amos K. Fiske, *Midnight Talks at the Club*.

made them once more intelligible. Why was the New Testament plan not adopted in the Old Testament? The reason of the difference must plainly be found in the attainments of those in whose hands the Pentateuch was first placed, and for whose use it was first of all intended. *These must have known Egyptian as well as Hebrew*; and the Egyptian words and names were not explained in Hebrew, for the good and sufficient reason that there was no call for any explanation. There is no other way of accounting for the presence of these words in the Bible, and, above all, for their not being interpreted even in a single instance. The readers for whose use the Pentateuch was first of all written were an Egyptian-speaking, as well as a Hebrew-speaking, people. The bearing of that fact upon present discussions is not merely important; I venture to say it is also momentous. For it means that the Pentateuch belongs to the times of the Exodus. In other words, it must have been written for a Hebrew people who had sojourned in Egypt.

The discoveries touch also upon the suppositions on which the scheme of division and the dating of the alleged documents rest. It was taken for granted that the time of Moses was too early for exact history. Little, if anything at all, it was said, was then committed to writing. A nation's history, such as it was, was handed down by oral tradition, and by ballads which had been inspired by local or national events. That notion, however, has now to be discarded. There was exact history in the time of Moses. And not only so. For long ages previously monarchs had been relating their achievements and making and recording treaties; merchants had been writing out, signing, and preserving contracts; priests had been registering astronomical phenomena, and had been reading and copying books on religious ritual and on various sciences. It has to be observed also that these statements are not founded upon mere inference. The documents referred to have been recovered, and are now available as proof that history was possible in the age of Moses. They show that history was actually being written in that very time, and that the art had been in use for centuries. They show further that there is nothing in Pentateuchal history which could not have been set down by ready pens in the days of the Exodus. Egypt, like all the East, had cultivated learning for long ages. "When," says Erman, "the wise Danuuf, the son of Chert'e, voyaged up the Nile with his son Pepy, to introduce him into the 'court school of books,' he admonished him thus: 'Give thy heart to learning and love her like a mother, for there is nothing that is so precious as learning.' Whenever or wherever we come upon

Egyptian literature, we find the same enthusiastic reverence for learning."* In the XVIIIth Dynasty, the time of Moses, this earnest pursuit of literature was in full career. It was an age of writing and of books. From what we now know, it would have been an almost fatal objection to any account of the work of Moses had there been no writing and no books in connection with a movement of such vast historic importance. It would have been urged, and urged with irresistible force, that the absence of literature and the presence of other marks of a rude and illiterate time showed that the mission of Moses could not possibly belong to the place and to the age with which it is said to have been associated, and that above all it could have had no such connection as it is said to have had with the Egypt of the XVIIIth Dynasty.

A second assumption is that the time of Moses was much too early for so elaborate a body of laws as is contained in the Pentateuch. With the then current notions as to the state of Eastern society in 1600 B.C.—notions which were due to the dense ignorance of those times which prevailed previously to the middle of last century—this conclusion was natural. As a matter of fact, we may, indeed, go further. Notwithstanding what was already known of the literary character of antiquity, the idea that there was no law book in ancient Babylonia, for instance, was clung to tenaciously. On the very eve of the discovery of the Laws of Hammurabi. Dr. Pinches, one of the princes of archaeology, wrote: "It may be noted that the ancient Babylonians had to all appearance no code of laws in the true sense of the term."† All that they were supposed to have had were "customs and precedents," the only legal equipment, it was said, in the age of Moses and in Israel for centuries afterwards. All this now belongs to the past. A glance at the full and able translation of the Laws of Hammurabi supplied by Dr. Pinches in his appendix to the book from which I have just quoted, dissipates the notion that the age of Moses was too early for a regularly codified body of laws. Here, five hundred years earlier, we have an equally elaborate law-book, dealing with agriculture, commerce, social relations, evidence, etc., and occasionally presenting suggestive parallels to the Laws of Moses. And this important discovery takes us further still. It shows not only that the Mosaic law

* *Life in Ancient Egypt*, p. 328.

† *The Old Testament*, etc., p. 190.

was possible; it also indicates why it was given at that time and by the hands of Moses. Canaan seems to have been under the Hammurabi code. Egypt we know from ancient testimony had also a written body of laws. Now, if the Israelites were to form a separate nationality—a people sundered from every other, both by belief and by life—by what was their national, social, and individual life to be regulated? If they had retained the Egyptian law, or adopted the Hammurabi code, they would have lived in the same manner, and have continued on the same level, as the nation from which they had just separated or as the peoples into whose midst they were now to pass. It was an absolute necessity, therefore, that Israel should have its own code of laws. Otherwise the whole intent of the Exodus would have been frustrated from the outset.

Other facts have deepened the impression of the historical character of the Pentateuch. The ceremonial laws, said to have been given at Sinai, have a distinctly Egyptian character. The circumstances stated in the history enable us to understand why that should be so. The Israelites had just come forth from Egypt after a sojourn in it of more than two centuries duration. They had become habituated to Egyptian customs and ideas; and it was, consequently, unavoidable that, in providing them with an elaborate religious ceremonial, Egyptian customs should be to some extent reflected in the new religion. In other words, the Israelites had to be legislated for as they then were. If, on the other hand, present theories were correct, and these ceremonial laws had really been elaborated in Babylon, their Babylonian character would have been equally marked. But, seeing that the Babylonian character is absent, and that the presence of the Egyptian is undeniable, two conclusions seem to be forced upon us. The Scripture account of the origin of the Levitical Law is quite in accord with the fact; and the critical account of its origin is encumbered with enormous difficulties.

In the years 1868 and 1869 a scientific survey, conducted by Sir Charles Wilson and others, was made of the Peninsula of Sinai, with the result that the Scripture narrative of the sojourn and of the marches of the Israelitish host was most strikingly confirmed and illustrated. It is hardly conceivable that a bit of fiction could have so fitted in with the results of a scientific investigation; and the investigators have left it on record that they were strongly impressed by the conviction that the story of the wilderness journey was a record of facts, and that the

writer must have been an eye-witness of the scenes and of the incidents which he has described.*

Similar impressions have had to be recorded by the archaeologists who, through their discoveries, have been able to recall the times, the peoples, and the events, to which the Genesis-history refers. Ebers, in a highly significant passage in the preface to his famous book, says: "I bring by constraint, and nevertheless with goodwill, many a welcome matter to those who would close the door upon the free criticism of the Holy Scriptures; for I bear to them the information that especially the entire history of Joseph even in its details must be accepted as corresponding throughout to the genuine condition of affairs in ancient Egypt."† The above was published in 1868, and was among the first of those surprises which generally arrest for a moment or two the hand of iconoclastic criticism. Subsequent investigations have not modified the verdict of Ebers, sweeping though it is. The inscription on the tomb of Baba at El Kab, described by Brugsch, confirmed the Scripture account of a much-disputed incident—the seven years' famine. The monument belongs to the very times of Joseph; and Baba, detailing his services to the city which he governed, says: "I was watchful at the time of sowing. And now when a famine arose, lasting many years, I issued out corn to the city each year of famine." There was, therefore, in Joseph's time a prolonged famine, during which corn was supplied from the public granaries to the Egyptian cities. It will be remembered also that the Scripture tells us that Joseph entirely altered the system of land tenure in Egypt. One fact which has the closest bearing upon this statement is that, previous to the time of the Hyksos (the dynasty which Joseph served), the land is possessed by the nobles and their retainers, while at the close of that dynasty the land is found to be in the possession of the Crown. In other matters the progress of discovery has poured still fuller light on the Joseph-history. It was difficult to understand, for example, how the performance by Joseph of his duties as steward of Potiphar's house should have taken him into its private apartments. The discovery of the city of Amenophis IV., the heretic King, at Tel-el-Amarna furnished

* A later expedition sent out by *The Palestine Exploration Fund* to explore the region between the Sinaitic Mountains and Southern Palestine has added much additional evidence to the history of the Exodus; see Hull, *Mount Seir, Sinai and Western Palestine* (1884).

† *Ägypten und die Bücher Moses*, S. xii.

Egyptologists with ground-plans of ancient Egyptian dwellings. The roofs of the abandoned city had fallen in and so preserved the foundations of the houses. The store-chambers were at the back of the house; and, as (probably for safety) there was no door at the rear, the repositories, whence Joseph had to dispense what was needed for each day's requirements, could only be approached through the private apartments of the palace.

The experiences of Joseph were already ancient history in the time of Moses, and here we might have expected to meet the distortions and the fictions of popular tradition. It must, therefore, shake the confidence of those who have accepted current theories to discover that even in a matter of this kind we are still in contact with facts. But the surprising thing in these discoveries is that, however far back research carries us, the result is invariably the same. We now know that in ancient Palestine the writing and language used in intercourse with neighbouring peoples were the Babylonian. The prevailing laws were also, no doubt, those of Babylonia, which had early dominated Palestine in common with the rest of western Asia. In any case, Abraham, the Scripture tells us, was a Babylonian. The discovery of the laws of Hammurabi now enables us to understand the existence of a custom in the patriarchal time which does not seem to have been retained in Israel. The childless Sarai gives her maid to her husband, and Hagar thus becomes a second wife to Abraham. The same practice is repeated in the home of Jacob. We discover no trace of it in the times after Moses; but in the patriarchal period it is regarded as lawful and seems to be a custom of the time; for in neither case does the proposal occasion surprise or awaken protest. When we turn to Hammurabi's laws, we discover that the practice occupies that very position in the life of Babylon in this the very time of Abraham. In the marriage laws reference is made to it again and again. There are two other incidents in the Abrahamic history which spring out of this custom, and which the Babylonian code helps us to understand. We are told that, when Hagar saw that she was to become a mother, "her mistress was despised in her eyes" (Gen. xvi, 4). Sarai lays her trouble before Abraham, who replies: "Behold thy maid is in thy hand: do to her as it pleaseth thee" (verse 6). We now comprehend the significance of that reply. Hammurabi's law upon the matter runs thus: "If a man has married a wife, and she has given a maid-servant to her husband, and (the maid-servant) has borne children, (if) afterwards that maid-servant make herself equal with her mistress, as she has

borne children, her mistress shall not sell her for silver: she shall place a mark (or chain) upon her, and count her with the maid-servants." The law had thus decided the case: it was now Sarai's part to apply it. Hagar was degraded. She took her former place among the servants, and not without reminders of her servile position exceedingly bitter to a woman evidently proud of the position from which she was now deposed.

The second incident arose from the spirit shown by Hagar's son. A feast was made at the weaning of Isaac; and Sarah detected Ishmael in the act of mocking her child. To her it seems to have been eloquent of what might be expected in coming years. In that view of the matter the situation is intolerable, and she demands the immediate expulsion of "the bondwoman and her son." She said: "Cast out this bondwoman and her son: for the son of this bondwoman shall not be heir with my son, even with Isaac" (Gen. xxi, 10). But now there is no acquiescence on the part of Abraham. "And the thing was very grievous in Abraham's sight because of his son" (verse 11). It was only after he received the Divine command to "hearken unto her voice" that Sarah's request was granted, and that Hagar and Ishmael were sent away. We are now enabled to perceive what lay behind Abraham's reluctance, and the reason—we may add the necessity—for the Divine assurance which was given him when he was enjoined to do as Sarah said; "And also of the son of the bondwoman," the Divine assurance ran, "will I make a nation, because he is thy seed" (verse 13). According to the Babylonian code the disinheriting of Ishmael was illegal. "If a man's wife"—so ran the Babylonian law—"has borne him children, and his maid-servant has borne him children, (and) the father in his life-time say to the children whom the maid-servant has borne to him: 'My children,' he has reckoned them with the children of the wife. After the father has gone to his fate, the children of the wife and the children of the maid-servant shall share in the property of the father's house equally." The only advantage which the son of the free-born wife could claim was that of first choice. Now Abraham had acknowledged Ishmael as his son. As a just man he could not deprive him of the inheritance which was, therefore, legally his; and it was only the Divine communication that the lad's future was assured which enabled Abraham to comply. To have such an extremely sensitive response to the times is intelligible in a fully informed history, but would be a pure impossibility in fiction produced in other and later times.

The entire history of Abraham has been confirmed in similar fashion. He is said to have come from Ur in Chaldea. Now it might have happened that Ur had come into existence only after 2000 B.C., the time of Abraham. Or it might have been founded earlier and by Abraham's time have ceased to be inhabited. Was Ur, then, in existence in the days of Hammurabi and of Abraham? The answer of oriental research is that it was. But Abraham clearly belongs to a Hebrew-speaking community. Was there such a community in the Abrahamic Ur? The reply again is a decided affirmative. There was, and there had been for some centuries, such a colony in that Babylonian city. The very name Abram (Abramu) is found upon an earlier monument, and was possibly that of an ancestor of the patriarch. Abraham, we are told, goes down to Egypt, and finds that it is then open to strangers. That was quite contrary to learned belief, which informed us that it was not till the seventh century B.C. that foreigners were allowed to have free access to Egypt. But we now know that in this matter learned opinion was wrong, and that the Scripture shows us the country as it then was. The famous fourteenth chapter of Genesis must not be omitted in this connection. There certain sovereigns of Abraham's time are named as associated in the invasion of Palestine. Among them is Hammurabi himself (Amraphel), who is serving under Chederlaomer, the King of Elam. This supremacy of Elam was a fact, and the men named were all of them personages of the period.

It is remarkable that oriental discovery has also enabled us to detect the historic accent in the Scripture narrative of still earlier times. Hilprecht speaks of the "enormous sandhills" in various districts of Babylonia, and adds, "These heaps were known to the ancient Babylonians by the name of *Tul Abuba* (mounds of the Deluge)."* The memory of the Deluge not only lived on in ancient Babylonia, but had also acquired a distinct place in its historic records. "The Deluge," writes Boscawen, "forms a dividing line between the mythic age and the beginning of history; and to both Chaldean and Hebrew writers it was a real event, for in a list of royal names in the British Museum we read, "These are the kings after the Deluge (*abubi*), who according to their relative order wrote not."† In the account of the settlement of the nations after the Deluge, Elam is classed among the Shemites (Gen. x, 22). That

* *Explorations in Bible Lands*, p. 41.

† *The First of Empires*, p. 66.

arrangement has till recently formed a difficulty. The ancient inscriptions clearly indicated that the Elamites were Kassites or Hamites, and not descendants of Shem. The Abrahamic history itself implies that this was so, for the very name of Chedorlaomer, the king of Elam in Abraham's day, is Hamitic and not Semitic. But the French discoveries at Susa have shown that a long Semitic period preceded the Kassite or Hamitic period in Elam, and that in Abraham's time the supremacy had passed to a Hamitic race. Here, then, we have the Scripture testimony to a fact that could not have been a matter of common knowledge even in the times of Moses, and that was certainly concealed from after times. Going still further back, we find light shed upon the very beginnings of human history, as recorded in the Bible. "Cain," says Mr. Boscawen, "flees to the land of Nod, eastward from Eden (Gen. iv, 14). The passage now becomes clear in the light which the monuments throw upon the beginnings of Babylonian civilisation. The word Nod is the *Nadu* of the inscriptions, that is, the land of the wanderers, the *Mandu*, or 'barbarians,' the very region where we have seen the Babylonian civilisation grow up."* Gen. iv, 16-21, clearly indicates that building and other arts originated in the Cainite line, among those very settlers in Nod. Another curious fact provides a further commentary upon the statement that Cain named his city after his first born son, Enoch (verse 17). That name became the word for "city" in the most ancient civilisation known to us. It is, says Boscawen, "the old Sumerian *Unug* or *Unuk*, which passed into the Semitic Babylonian as *Uruk* (Erech), the word for city and especially for the ancient capital of Nimrod *Erek*, the city *par excellence*."†

In this brief review of nearly a century's labours, it has been impossible to do more than call attention to a comparatively small portion of their abundant results. But these suffice to show how little such investigations have to be dreaded by the Scripture. Indeed, it is not too much to say that, within the sphere of genuine science which has concerned itself with Scripture statements, there is to-day a higher appreciation of the antiquity, veracity, and historic value of the Bible than was to be found in any previous time since the march of modern science begun.

DUM SPIRO, SPERO.

* *The First of Empires*, p. 79.

† *Ibid.*, p. 80.

DISCUSSION.

MR. ROUSE.—I should like to say a word or two regarding the Tell-Amarna tablets, having read twice over Colonel Conder's book, the first complete translation of these tablets. He points out that whereas Prof. Sayce has said that the Habiri meant confederates, that that word is not applied to the confederates of the North ; for a large portion of the letters referred to a confederation of Northern tribes in the north of Canaan under a King of the Mitani against the King of Egypt, and the persons there mentioned are not called Habiri at all. But the Habiri, on the other hand, those people in the South who appeared and overran the Southern region, as told in these letters, are called a "tribe" and a "race." Further, they are said to have overrun the territory to the South, especially that under the dominion of the King of Jerusalem. He writes himself in these letters that they overran it from Mount Seir onward.

Of course the Israelites did come from that neighbourhood: they went round Edom, or Mount Seir, they then passed through Moab and across the Jordan, and they fought all along through the south of Canaan from where Edom began right up to the middle of Canaan, fighting against the King of Jerusalem and his allies. Of course the account in the Bible is only a summary ; for, though it is told that two or three great battles took place, it is shown that Joshua was five years in conquering this region.

Then, again, the leader of this tribe or race that was fighting against the King of Jerusalem bears a Hebrew name which reminds us of Elimelech (Ilimelec).

Again he speaks of not only their ravaging, but their having deprived the King of Egypt of all allies, and finally in another letter of their depriving himself of all subjects, when he says, "I have no subjects left."

The King of Jerusalem in these letters is always writing to the King of Egypt to send back the army which that King formerly had there, and finally he writes, "We are fleeing from Jerusalem, O King," which is exactly what in Joshua's time the King of Jerusalem did. The four ill-fated kings, including him of Jerusalem, having gone out to fight the Israelites, were fleeing from them when they were

captured in the cave of Makkedah. Two of the kings mentioned by Joshua belonged to the cities mentioned in the tablets, Gezer and Hazor, and one bears the name Jabin in both accounts.

Japhra is called in the tablets King of Gezer, but in the Bible King of Lachish; on the other hand, we find that Lachish and Gezer were in intimate relations, for when Gezer was attacked the King of Lachish came to its succour. (Jos. x, 32.)

Then again we find that this people destroyed—at least it is supposed to be the same people—this very tribe destroyed thirty temples of the gods in one month. And, lastly, in these letters it is said that Beth-baalatu had rebelled against the king. Now this name, Beth-baalatu is closely akin to the second name of Kirjath-jearim, Baalah or Baale, which was one of the cities of the Gibeonites, the only people who made terms with Israel (Beth-baalatu meaning the house of the female Baal); and of course we know that the King of Jerusalem and the other southern kingdoms' rulers were so indignant with the Gibeonites for having made peace with the Israelites that they made war on them in turn. (Jos. x, 1-4.)

It seems to me most convincing, when you put all these arguments together, that the Habiri are the Israelites. And a very curious thing was found by Colonel Conder. The last letter of the King of Jerusalem—presumably the last—in which he says, "We are leaving Jerusalem, O King," is written upon two kinds of clay, one part of the letter having been written in Jerusalem and the other in his place of exile, which was no doubt the very cave of Makkedah.

The SECRETARY.—Mr. Chairman, I just wish to interpose at this point to call to your recollection that since we last met a most distinguished explorer of the Holy Land and district of Sinai and Mount Hor has passed away from us, the late Major-General Sir Charles Wilson, a personal friend of mine for many years. He was not a member of this Institute, but he was present here more than once and took part in our discussions.* He was one of the most remarkable men of the present generation. I do not hesitate to state that his career was one of the most extraordinary of modern times amongst British officers of the army. But the point that I want

* See "Recent Investigations in Moab and Edom," *Trans. Vict. Inst.*, vol. xxxiii, and "Water Supply of Jerusalem," Annual Address; vol. xxxiv (1902).

to refer to in respect of our late distinguished friend (whose name is in this paper) is that in the very last of his exploratory expeditions, which was to the land of Edom and Moab, he was able to throw light upon a point that always appeared to me to be one of extreme difficulty, namely, an occurrence that took place regarding the death of Aaron, the high priest. You will recollect that it is said that when the Lord had pronounced the sentence against Aaron and Moses—that they were not to personally enter the Promised Land—Aaron was the first to die. He took off his priestly robes and ascended Mount Hor. It says nothing more than that he died on Mount Hor. What became of his body is the point that always was the difficulty with me, until Sir Charles Wilson in his last expedition, of which he gave an account to us here, said that he had ascended Mount Hor and discovered a number of tombs or caves which had been undoubtedly used for tombs, and which we may be quite sure had been there from a very long antiquity, and possibly used as sepulchres by the Edomite inhabitants. The present Arabs are not excavators of tombs, although they made use of tombs for their dead, and I have no doubt that the body of Aaron was laid—that he laid himself down in one of these tombs and passed away. I think that is a very interesting point, and I have referred to Sir Charles Wilson to mention that he is a discoverer and explorer who has thrown light upon the subject of the death of the prophet Aaron.*

I have also to thank Canon Girdlestone for reading the paper in my stead.

MR. WOODFORD PILKINGTON.—One portion of this very valuable paper of Mr. Urquhart's refers to the discrepancies between the Book of Kings and the Book of Chronicles. It is very remarkable that in the Book of Kings all the crimes of the Kings like David and Solomon are noticed by the Holy Spirit in directing the writing in this book with a view to serve the times forward in which we live. There is a record in the Book of Kings of the crimes of

* On referring to the paper read by Sir Charles Wilson, "Recent Investigations in Moab and Edom" (vol. xxxiii, p. 242), I am unable to find a reference to the caves on Mount Hor; but it is strongly impressed on my mind that they had been referred to by the author of the paper, and may have been shown in one of the lantern pictures, or stated in the discussion.—E. H.

people, which no people on earth, we or any others, would have ever thought of chronicling of their own accord, representing Israel in such an apostate condition towards God. It is done by a higher power than man's. It is written by the Holy Spirit of God, and it is meant to show how great sins like David's and Solomon's—who were types of One who was to come—how great sinners though they were, yet the grace of God could meet their case.

Now in Chronicles you find all these things left out—and we find kings like Solomon, and the Queen of Sheba who comes to him with spice and gold and so forth from Sheba and tells him that “the half hath not been told” of his greatness, glory and excellence.

I do not wish to introduce theological discussions, but it is very important that people should notice these things, those who esteem the Bible as a very precious book.

The Blessed Lord says to the people in His day, “If ye believe not Moses' writings how can ye believe My words?” and in the parable of the one in Hades, Abraham is made to say, “If they hear not Moses and the prophets neither will they be persuaded though one rose from the dead.” It is written with a spiritual purpose from first to last, and I put these remarks forward as one who feels inclined to say to it, as Nicodemus said, “I know that Thou art a teacher sent from God.”

There is a little note here which is remarkable and makes it permissible to notice, that in the reign of Belshazzar one of the most wonderful visions of Daniel is recorded in chap. viii, and all of us here will remember that vision of the ram with two horns and the goat with one. This most remarkable prophecy has been most remarkably fulfilled. There was a battle between the two creatures, the goat with his one great horn being Alexander of Greece. It does not mention the name, but it is well known that Alexander went to Egypt and died there, childless, without an heir, and that his four generals, just as Daniel prophesied, divided the kingdom between them.

* * * *

These things were to happen at the end of the indignation, at the very end, for this was for a time appointed.

Mr. ROUSE referred to an oversight on p. 48.—“The word Nod is the land of the wanderers, the very region where we have seen

the Babylonian civilisation grow up." It ought rather to be said the land of the Mandu, on the east side of Babylonia. The Mandus lived near the mountains on the east side of Babylonia, and of course that would agree with the land of Nod being on the east side of Eden. The Bible says the east side of Eden. The Babylonians call their plain Edenu, and the four rivers of Babylonia may be fairly identified.

ORDINARY GENERAL MEETING.*

THE EARL OF HALSBURY, D.C.L., F.R.S. (PRESIDENT), IN
THE CHAIR.

The Minutes of the previous Meeting were read and confirmed, and
Dep. Surgeon-General W. P. Partridge was elected Associate.

The following paper was read by the Author :—

ICELAND: ITS HISTORY AND INHABITANTS. II.

By Dr. JON STEFANSSON, Ph.D.

THE earliest inhabitants of Iceland in historical times were Celts, who called the island *Thule* (Thyle, Thile). The Greek traveller, Pytheas of Massilia, made voyages of discovery in the north-west of Europe in 330–320 B.C. He relates that he had found the northmost country of the world, “Ultima Thule,” of which he gave a somewhat fantastic description. We only know of this discovery of Pytheas through the quotations of the Greek geographer, Strabo, and other ancient writers. Strabo himself seems to have got his knowledge of it not from Pytheas, but indirectly through the historian Polybius. Yet it is possible that Strabo may have seen Pytheas’ own account, which, however, has been lost. All descriptions and accounts of Ultima Thule found in writers before A.D. 825 are indirectly derived from Pytheas as a primary source. It is true that Bede (died A.D. 735) mentions Thule three times in his writings, and his description of its site is suitable to Iceland; but he may have taken his account from Plinius, who again derived his from Pytheas. It is more probable that Bede heard of Iceland from monks in the British Isles who had been there.

* 1st January, 1906.

The first undoubted account of the discovery of Iceland is found in Chapter VII. of "*De mensura orbis terrae*" by the Irish monk Dicuil, written in A.D. 825. He states that thirty years ago (*i.e.*, 795) some monks told him of their stay in Iceland. There is nothing in the passage to show that the island had not been discovered long before 795, or that it was only visited by monks; on the contrary, for Dicuil says it is untrue what *others* say that the sea round Iceland is frozen, etc.

Dicuil thinks this island is Pytheas' Thule, and this seems to have been the name given to the island when it was discovered by the Celts. We may, then, take it for certain that Iceland was called Thule by its earliest inhabitants.

The Norwegian heathen settlers who followed in the latter half of the ninth century found books, bells and croziers left behind by the monks who fled from the island at the approach of the vikings. But these and a few place-names, such as Papey, Papyli, Papós, are the only traces left of these early settlers. They were called *Papar* by the vikings.

It is doubtful whether Naddoð or Gardar was the first Scandinavian discoverer of Iceland, about A.D. 860. Raven-Floki, who let loose three ravens in mid-ocean and sailed in the direction in which they flew, was the next to go there, and called it Iceland because from a mountain top in north-west Iceland he saw a fiord full of drift ice. The first Norwegian settler in Iceland was Ingolf Arnarson, a chieftain, in A.D. 874. When in sight of land he threw the pillars of his own high seat overboard and settled where they came ashore, on the advice of his gods, as he believed. When, after the battle of Hátursfiord, 872, Harald Fairhair became undisputed king of all Norway, and subjected the free chieftains and noblemen of the country to taxation, they preferred to emigrate. For sixty years the men of the best blood in Norway flocked to Iceland. Each chieftain took with him earth from below his temple altar in the motherland, built a new temple in the new land, and took possession of land by going round it with a burning brand in his hand. He deposited the holy gold ring on the altar which he was to wear at all ceremonies. Until a Parliament for Iceland was established in 930, these chieftains were the rulers of the island, each in his district or land-take (*land-nám*), as it was called.

PERIODS OF ICELANDIC HISTORY.

- I. The Commonwealth, A.D. 870–1264. The Eddas.
The Sagas.
- II. The Norwegian time, A.D. 1264–1400. Copyists
annalists.
- III. The English period, English influence being para-
mount, A.D. 1413–1520.
- IV. The Reformation, the sixteenth century.
- V. The Renaissance, the seventeenth century.
- VI. The Stagnation, the eighteenth century.
- VII. The Independence Movement and its victory, 1830–
1905.

Few Englishmen are aware that there is a *British Colony* in the Atlantic which has never owed allegiance to the British Empire—which was a republic for about four centuries, and during that time produced one of the great literatures of the world—which is larger in area than Ireland by one-fifth, which is only 450 miles distant from the nearest point of the north-west coast of Scotland, Cape Wrath. This is *Iceland*, fully one-half of whose settlers, in the ninth and tenth centuries, came from the northern parts of the British Isles—Scotland, Ireland, the Hebrides, and Orkney—and were partly Norse, partly Gaelic in blood.

Fewer still are aware that the long Constitutional struggle of Iceland is at an end, Denmark having conceded all its demands. To understand the present stage of this question it is necessary to tell the history of the past.

Iceland was settled and colonised in the years 870–930, partly by Norwegian chieftains who left Norway because they would not submit to King Harold Fairhair, partly by the kinsmen of these chieftains and by others from the northern parts of the British Isles. We possess the record and genealogy of about 5,000 of the most prominent of them in the *Landnámabók* or Book of Settlement. No other nation possesses a similar full record of its beginnings.

A republic or commonwealth, with a Constitution and an elaborate code of laws, was established and lasted till A.D. 1262–64, four centuries if reckoned from the Settlement, the longest-lived of republics, Rome alone excepted.

The chieftains, *Goðis*, who presided not only at meetings but at temple feasts and sacrifices, and were thus the temporal and spiritual heads of their dependants, sent *Ulfliot* to Norway to

inquire into the laws and make a Constitution for Iceland. He accomplished it in three years. According to this, in 930, a central Parliament for all Iceland, the *Althing*, was established at *Thingvellir*, in a south-west Iceland, and a "Law-Speaker" was appointed to "speak the law." In 964 the number of chieftaincies, *Goðorðs*, was fixed at thirty-nine, nine for each of the four quarters into which the island was divided, except the north quarter, which was allowed twelve. The *Althing*, as a court of appeal, acted through four courts, one for each quarter. There was also a fifth court, instituted in A.D. 1004, which exercised jurisdiction in cases where the other courts failed. For legislative purposes the *Althing* acted through a committee of 144 men, only one-third of whom, viz., the thirty-nine *Goðis* and their nine nominees, had the right to vote. The nine nominees were chosen by the *Goðis* of the South, West and East Quarters, three by each quarter, to give each of these quarters the same number of men in the Committee as the North Quarter had. Each of these forty-eight men then appointed two assessors to advise him, one to sit behind him, the other to sit in front of him, so that he could readily seek their advice. Thus the Committee of 144 was made up, and it was called *Lögretta* (Amending of the Law).

After the introduction of Christianity in A.D. 1000 the two bishops were added to the *Lögretta*, while the sole official of the republic, the *Law-Speaker*, used to preside. It was his duty to recite aloud in the hearing of all present at the Parliament the whole law of Iceland, going through it in the three years during which he held office, at the annual meeting in the latter half of June, which generally lasted a fortnight. Also to recite once a year the formulas of actions at law—all from *memory*, for no laws were written down till about 1117. When any question of law was in dispute, reference was made to him, and his decision was accepted as final. For his labours he received an annual salary of 200 ells of vadmal (woollen cloth) and one-half of the fines imposed at the *Althing*. He was the living voice of the law, *viva vox juris*, but he was neither judge nor magistrate, and did not open the *Althing* or take the responsibility for keeping order at it, for that was done by the *Goði*, within whose jurisdiction the *Althing* met. He enunciated the unwritten law, accepted by all.

The *Goðis* and their nine nominees sat on the four middle benches arranged round a central square, twelve on each, while the two assessors of each of them sat, one on the bench behind, the other on the bench in front of him. The *Lögretta* made,

modified, and applied the laws. Decisions were carried by simple majority, though the minority must not consist of more than twelve members. If a resolution of the *Lögretta* infringed the rights and interests of any free man, he could veto or suspend it by appearing in person. It was one of the numerous precautions taken to guard the ancient palladium of personal liberty. It was a counterpoise to the abuse of oligarchy. The whole nation, through any of its members, had, in the last instance, the right to take part in the deliberations of the Althing.

The *Lögretta* published and interpreted the laws through the Law-Speaker. He could be consulted at any time of the year on a point of law, being its official interpreter. If a law was passed by in silence and not recited publicly by him for three years, *i.e.*, for his term of office, it was abolished, provided that no remonstrance was made. The only trace there was of central power in the island resided in him, but as he had no executive power, it was next to none.

After the Althing the new laws and other matters of public importance were proclaimed at a Thing, held in each Thing district of Iceland, and called *Leið*. There was another Thing held in the spring, dealing with local matters and preparing for the Althing.

The source of the English trial by jury is the Icelandic *kvið*, and the English juries *de vicineto* in the thirteenth century correspond with that form of trial.

At the Althing of A.D. 1000 a debate took place about the introduction of Christianity. The Christian chieftains supported the envoys of King Olaf Tryggvason of Norway, and the heathens, to avoid civil war, agreed to submit it to the decision of the heathen Law-Speaker, *Thorgeir*, whether the Christian religion or the old faith should prevail in Iceland. For three days and three nights he lay quietly in his tent, thinking over the two religions. On the fourth day he stood forth on the Law mount, or hill, and declared that they were to be baptized and call themselves Christians, the temples to be destroyed, but those who liked to sacrifice at home to the old gods might continue to do so, and a few heathen customs were to be permitted. The people accepted this, only the men from North and East Iceland refused to be immersed (baptized) in cold water, so the hot springs at Reykir were used for the rite.

Two bishops' sees were established, at Skálholt in 1056, and at Hólar in 1106, subject successively to the Metropolitan sees of Bremen, Lund and Thrandheim. The bishops were elected

at the Althing until the Archbishop of Thrandheim appointed Norwegians in 1237. Two bishops, St. Thorlac and St. John, were, by a public vote at the Althing, declared to be Saints, after a thorough and searching inquiry into the miracles they had wrought. Thus the Icelandic Church was a Church of the people for the people, and Rome had little power in the island. Celibacy was never accepted by it. In the twelfth and thirteenth centuries six Benedictine and five Augustinian Cloisters were founded, all centres of learning and culture. The greater part of the Icelandic Sagas is supposed to have been written or at least copied in them. The oldest was the Benedictine Cloister at *Thingeyrar*, 1133, next *Thverá* 1155, also Benedictine. The Icelandic monks wrote in Icelandic, not in Latin, as all their brethren on the Continent. They were intensely national, and handed down with scrupulous care even the records of the heathen faith. But it was owing to disputes about the jurisdiction of the clergy that the King and Archbishop of Norway were able to set chieftain against chieftain and undermine the Icelandic commonwealth, disputes similar to those which Thomas à Becket of Canterbury carried on with Henry II. half a century earlier, and which are recorded in the Icelandic Thomas Saga.

The two centuries and a half which followed the introduction of Christianity were the greatest period in the history of Iceland. A great literature, especially the *Sagas*, came into being, while the Continent, with the single exception of the Provençal Troubadours, had nothing better to show than monkish annalists. At the Courts of Norway, Denmark, Sweden, Dublin, England and Orkney, Icelandic poets were the chief or, usually, the only singers of heroic deeds. It was an outburst of literature such as the world had not seen since the downfall of Rome.

By degrees the chieftaincies, *Goðorðs* which passed not only by inheritance but also by gift or sale, came into the hands of a few great families. In consequence some chiefs became masters of large districts, and, like feudal lords, rode to the Althing with an armed body of retainers, numbered by hundreds. The old blood-feuds became little wars conducted by armies that engaged in battles. Disputes about the jurisdiction of the Church provoked interference by the Metropolitan See of Drontheim, which appointed the two Icelandic bishops of *Hólar* and *Skálholt*. Internecine civil wars, lasting through the first half of the thirteenth century, exterminated some of the great families who had monopolized the chieftaincies. The

Wars of the Roses in England (1465-85) are a close parallel to these wars in Iceland.

The Kings of Norway had always held that the Icelanders, as Norwegian colonists, ought to own their supremacy. Olaf Tryggvason and Saint Olaf had, in vain, laboured to win the Icelanders over to this view. King Hákon Hákonson (1217-63) now suborned chief against chief. The great house of the *Sturlungs* had perished at the battle of Orlygsstad, 1238, and *Snorri Sturluson*, the greatest historian and writer that Iceland has produced, was murdered at Reykjaholt in 1241 at the King's instigation. The one leading man of the family left alive, Thord Kakali, was called away to Norway. By bribes, by persuasion, by sending Icelandic emissaries through the island, by winning over the most powerful chief in Iceland, *Gizur Thorvaldsson*, it came about that the Icelanders, of their own free will, in solemn Parliament, made a Treaty of Union with the King of Norway in which they accepted his supremacy: the South, West and North Quarters at midsummer 1262, one year before the battle of Largs, when Norway lost her colonies in the West, the powerful family of the Oddaverjar in 1263, and the East Quarter in 1264, the date of the summoning of the first Parliament of England by Simon de Montfort.

The *Treaty of Union*, as passed by the Althing, enacted that a *jarl* should represent the King of Norway in Iceland, that the Icelanders should keep their own laws and keep the power of taxation in their hands, that they should have all the same rights as Norwegians in Norway, that at least six trading ships should sail from Norway to Iceland annually, that "if this treaty, in the estimation of the best men (in Iceland) is broken, the Icelanders shall be free of all obligations towards the King of Norway." This treaty is the Magna Charta, the charter of liberty of Iceland. It has sometimes been in abeyance, but has never been abolished. It has sometimes been disregarded by Denmark, when it wished to make Iceland a Danish province; but the people of Iceland have always taken a firm stand upon it.

There never was more than one jarl in Iceland, *Gizur Thorvaldsson*, who died in 1268. The old code of laws, *Grágás*, elaborate as the Codex Justinianus, and going beyond it, e.g., in the mutual insurance of each commune against fire and against loss of cattle, was replaced in 1271 by a Norwegian Code, the Ironside, *Járnsíða*. Two law men (*lögmen*) were to govern the country and the *Lögretta* was limited to its judicial functions. The Althing refused to accept the new Code, though it was

brought from Norway by the greatest author of the latter half of the thirteenth century, *Sturla Thordarson*. A new Code, *Jónsbók*, was a compromise code, brought by the lawman, *Jón Einarsson*, to Iceland in 1280, was accepted at the Althing of 1281, with some alterations. It is called *Jónsbók* after *Jón Einarsson*, and is still, in parts, the law of Iceland.

Iceland was divided into *sýslas* or counties, administered by sheriffs (*sýslumenn*) appointed by the King, and the place of the local Things was taken by bailiffs (*hreppstjóris*), mainly concerned with the poor law and tax gathering. The estates of the Sturlung family were confiscated by the King. Trade languished, and the Black Death, in conjunction with great volcanic eruptions, brought Iceland to the verge of ruin. As soon as Norway became united with Denmark through marriage in 1380, the Treaty of Union was more or less disregarded, and the Icelanders were so broken in spirit that they meekly submitted.

The fifteenth century is looked upon as the darkest age of Icelandic history. Denmark confined all Iceland trade to the one port of Bergen in Norway, and the English trade with Iceland, which began about 1412, was carried on in defiance of edicts from Copenhagen. Soon the English buccaneers took the law into their own hands and arrested all Danish and Norwegian officials who tried to prevent their trade. The Icelanders seem to have taken the English side in these quarrels, and about 1430 the two Bishops of Iceland were both Englishmen. At one time Iceland was actually held by them, and they built a fort in the south of the island. A number of English words came into the Icelandic language, and are in it to-day. By favouring the Hanseatic traders, Denmark finally succeeded in ousting English trade from Iceland, but the English fishing fleet, the so-called "Iceland Fleet," continued to fish for cod and ling on the shores of Iceland during the whole of the sixteenth century. As late as 1593, fifty-five ships sailed for Iceland from Essex, Suffolk and Norfolk alone for this purpose. Henry VIII. negotiated with Denmark, in 1518 and 1535, about the transfer of Iceland, the interests of England in that island being of great importance. The House of Commons, in one of its petitions to the King, states that the realm will be undone unless the fish supply from Iceland is regular. Both Henry VIII. and Elizabeth had Iceland fish on their table at least twice a week, and special Commissioners selected the best fish out of every ship on its return from Iceland for the Court.

The Reformation came to Iceland about the middle of the

sixteenth century, and was resisted by the Bishop of Hólar, Jon Arason, a well-known poet and popular leader. At last he was taken prisoner in a battle and publicly executed, with his two sons, in 1550. Thus the Reformation was forced by the Crown on an unwilling people. The New Testament in Icelandic was printed in Denmark in 1540, but the first Bible in Icelandic came out at Hólar in 1584. The woodcuts and some of the fount of type of this fine work were made by Bishop Gudbrand Thorlaksson with his own hands. The translation of the Old Testament was also made by him.

The printing press woke the national spirit. Arngrimur Jonsson at the end of the sixteenth century rediscovered the treasures of the past and brought them to the knowledge of Europe, in his Latin writings. His *Brevis Commentarius* in 1593, and his *Crymogaea* in 1609, were known and partly translated all over Europe. It was the beginning of the Renaissance of Old Icelandic literature. The learned Thormod Torfaeus (1636-1719), an Icelander who was the historiographer of the King of Denmark, continued Arngrim's work. The Icelandic antiquarian, Arni Magnusson (died 1730) diligently rescued every scrap of old manuscript to be found in Iceland, and founded the magnificent *Arna-Magnæan* collection in Copenhagen, devoting all his life and money to it. It is due to him more than to any single man that the old literature of Iceland has been preserved.

The Hanseatic trade was succeeded by a Danish monopoly of trade which completed the economic ruin of Iceland. Algerine pirates appeared off the coast and carried off hundreds of people into slavery, in 1627. Small-pox carried off one-third of the population in 1707, a famine raged in 1759, and the volcanic eruptions of 1765 and 1783 laid waste large tracts of the island. Nature seemed in league with man to render Iceland uninhabitable.

During the war between England and Denmark, 1807-14, English privateers prevented Danish ships from reaching Iceland, and a famine would have broken out if Sir Joseph Banks—who had visited Iceland in 1772—had not, by an Order in Council, got Iceland specially exempted from the war.

The national movements in Europe in the first half of the nineteenth century reached the shores of Iceland, and a band of patriots began a political struggle to win back the old freedom. On March 8, 1843, a deliberative Council was established in Iceland, and when Denmark had got her own free Constitution, a National Assembly, a *Constituante*, met, in July, 1851, at

Reykjavik. Denmark proposed to extend her Constitution to Iceland, which was to send six members of Parliament to Copenhagen. But a Committee, under the leadership of Jon Sigurdsson, declared that as Iceland, by the Treaty of Union in 1262, entered of her own free will into union with the Crown, on certain conditions, she claimed, not provincial independence as proposed by Denmark, but a sovereign status, taxation, a High Court, Ministers in Iceland responsible to the Althing; in short, personal union. The Constituent Assembly was dissolved or dispersed with threats of military interference. This Constitutional struggle went on under the leadership of Jon Sigurdsson, equally eminent as historian, antiquarian and politician until the King of Denmark came to Iceland in 1874 with a Constitution which was a compromise. From 1874-1900 more than 50 Bills passed by the Althing were vetoed at Copenhagen, where the Danish Minister of Justice was simultaneously Minister for Iceland. At last, in 1902, a new Liberal Government at Copenhagen conceded all the demands of Iceland. An Icelandic Minister for Iceland now resides at Reykjavik, solely responsible to the Althing. The King can only veto a Bill on his advice.

Thus the geographical isolation of Iceland, instead of relegating her to oblivion, has given her an opportunity to play a part on the stage of history as an asylum for the old institutions, faith and customs of the Teutonic race. With the language of the tenth century unaltered, it is to-day a living Pompeii where the northern races can read their past.

DISCUSSION.

The SECRETARY.—I may just observe that this is the second valuable paper that Dr. Stefansson has contributed to the Society on the institutions present and past of Iceland.* Being a native of that remarkable country himself, and being qualified by his learning and investigations, perhaps better than any other living man, to deal with the subject, he has given this Institute the advantage of his knowledge in both these papers. Possibly it may

* The former paper is entitled "Iceland ; its History and Inhabitants," *Trans. Vict. Inst.*, vol. xxxiv, p. 164 (1902).

not be the last which he will give ; at any rate we have these two valuable communications, and I think very few Societies in the Metropolis have been equally favoured. (Hear, hear.)

Iceland is certainly a country about which, until very recently, we have known very little ; and I was saying to Dr. Stefansson it would be a very nice place to pass the winter in, because it is well known that the Gulf Stream possesses such remarkable calorific power while wending its way round the southern coast of Iceland that perhaps while we are suffering from bitter east or north winds here, the Icelanders are enjoying a climate which probably resembles that of Biarritz or the south-west of Ireland. If we had only a line of steamers going as fast as the Atlantic liners we could go there in about twenty-four hours from the north of Scotland ; so that the day may come when in order to escape the rigours of an English winter some inhabitants of the British Isles may be wending their way on large steamers to Iceland in order to pass the winter as they do now to the south of France.

We are all very much indebted to Dr. Stefansson, and I move the thanks of the meeting.

Colonel HENDLEY.—The concluding remark, that in Iceland the institutions, faith and customs of the Teutonic race are observed, is interesting. I notice amongst other points, the bringing from Norway of handfuls of earth to place beneath the temple altar in Iceland. This was done in Hungary when the Royal Constitution was proclaimed. I notice also that the institutions, faith and customs of other races seem to be very much the same in Iceland as those of the Teutonic races, for example, the custom of Law-givers reciting the laws from memory. I would like to ask Dr. Stefansson whether these Law-speakers were bards, because in Rajputana the Rajputs are accustomed to, and do still I believe in their homes, hear all the laws and history of their race recited by their bards. Another custom referred to is that of the chieftains presiding, not only at meetings, but at temple feasts and sacrifices. This of course is also a Semitic custom, but it survives in India, at Oudaipur, where the Maharana or chief habitually performs the first portion of the temple duties when he enters the temple.

With regard to the moving round the altar with a burning brand, may I ask whether the direction is always that of the sun, or is there any definite rule?

It seems that many of these customs appear to be purely Semitic, for which reason I refer to their having a wider sway than amongst the Teutonic races. They were probably the same before that race left Central Asia.

I wish to thank Dr. Stefansson for his interesting paper.

A MEMBER.—May I ask what is the general population of Iceland at present?

THE LECTURER.—About eighty thousand.

MR. ROUSE.—I think this has been a most fascinating paper, and has informed us on many matters whereof we were formerly ignorant, especially that the Celts were the first colonisers of Iceland—that they were there before the Norwegians. That the first preachers were Celtic I knew, but I thought that their hearers were Norsemen.

I should like to ask the Lecturer the meaning of the prefix *pap* in *Papey*, etc. I think it suggests an interesting fact. Does it come from *papa*, a priest?

THE LECTURER.—Yes.

MR. ROUSE.—Herodotus tells us that all the priests of Scythia were called popes, and to this day in Russia the priests are called popes. Again, Ovid says the Roman priests were called popes in certain rites, and we know that a certain Bishop of Rome, the second successor of Gregory the Great, got the Byzantine Emperor to confine that title to himself, whereas it had formerly been the alternative title with “pastor” given to all the clergy.

The Lecturer mentions that the trial by jury passed from Iceland to England ultimately. Now Knight in his *English Encyclopædia*, and Nasmith in his *Institutes of English Public Law*, give proof that trial by jury was not an Anglo-Saxon institution but a Norman one, as the name suggests, but it may have come to the Normans from Iceland. I do not quite understand the reasoning here about it. Are we to gather that the forty-eight men were subdivided into portions of twelve men apiece to form the local Courts, and that each of these parties of twelve men forming a “Thing” or lesser Court, was the origin of our Jury?

THE LECTURER.—Yes. The Court and Jury are different.

MR. ROUSE.—I should like to say further regarding the matter which has been dealt with by Colonel Hendley so interestingly, that even supposing—which I do not for one moment suppose—

that the early facts of the Bible were first handed down traditionally and not written, we have not the slightest reason to doubt their truth. I believe, however, that they were written down because of the very specific way in which they are dated in the history of the Deluge, etc. But it has been the fashion to condemn these ancient traditions. Now we know that the Greek children used to learn the whole of Homer's poems by heart; and we learn from this paper that genealogical trees were known by heart very far back, for I gather that these were not written down, but memorized and repeated. Also in this paper we have the fact that once in three years a fresh Law-Speaker was appointed, and that he knew the whole of the laws by heart. Quite recently, for a second time, this country has been visited by the Somalis, and some who have interviewed them said that they could repeat their genealogy for twenty-two generations back, say 660 years. Before books were largely written this system of memorizing was far more freely practised and we have had a most interesting fact brought to light recently by a German Resident among the Masai, that once in the year, at least, this old tribe, which is the most warlike in German and British East Africa, holds a congress at which it recites all its early history; and this goes right back to the beginning of all things—to the placing of man and woman in the Garden of Eden, and to the fall in which woman was the first transgressor—curiously enough it mentions this, and that the tempter was the four-headed serpent. They tell of the murder of Abel by Cain and of the Flood, and how the Creator gave a token that the flood should never return by the four-fold rainbow.

As regards the other matter that Colonel Hendley has just mentioned about the transferring of the earth. We get that in the Bible; for Naaman begged of Elisha that he might carry some of the earth from Canaan to build his altar with. That was a peculiar case, of course, and shows the contrast between his first despising of Canaan and his after-gratitude. It is a curious fact, and fits in with what we have learnt here.

Professor LOBLEY.—May I ask if the lecturer has any information with regard to whether the glaciers of Iceland are making any progressive way towards the covering of the unglaciated lands. This is a matter of physical history, but it is a matter that must affect very seriously the future prospects of Iceland, if it is true. as I

understand, that the glaciers, those great glaciers in the south-east of Iceland, are spreading out to cover lands which have been cultivated.

Dr. JON STEFANSSON.—I am obliged for the kind reception of my paper.

Colonel Hendley put a question whether in moving round the altar with a burning brand the chief walked with the sun. I believe it is said that they did go with the sun.

With regard to the bards—they were not professional bards, but some of them happened to be poets or authors; but there is no rule about their being poets or writers. The laws were recited in prose, not in verse.

Referring to the trial by jury—I think it has been pointed out by others that the ancient jury is more likely to have come from Scandinavia than from elsewhere; but it is an extremely difficult question; and with Lord Halsbury here I would rather not enter into a legal question. In reply to the question by Professor Lobley about glaciers—I do not know any facts showing that they are extending. During the last 1,000 years they have not done so. They do not occupy a larger area.

In answer to a question whether flint or palæolithic remains had been discovered in Iceland—nothing of the kind has been found in Iceland; but lately some caves have been found in the south with what is supposed to be rock tracing, but it is doubtful whether it is so or not.

The PRESIDENT (Lord HALSBURY).—I should like in the first place to wish you all a Happy New Year, and in the next place I cannot allow the motion that has been made that we should give our thanks to the lecturer to pass without seconding it, and saying how deeply indebted we are to him for his extremely interesting paper. Some of the things that I found in this paper surprised me. I suppose we are all thinking that as we grow older we will know more, and yet though we know more we come upon profound depths of ignorance. But we cannot help ourselves. Certainly I have learnt more about Iceland than anything I knew before. I will not speak for all of you, but so far as I am concerned I make this statement freely. I am pleased to have learnt so much from the lecturer. There are one or two observations. I have been a Law-speaker for a good many years, and I am filled with profound gratitude that it is not my duty to repeat the whole Law of England

from memory. If I did I think it would not be once in three years, for I should not have finished it by then.

I observe the Lecturer with great prudence avoided saying where the trial by jury came from. I am disposed to imitate his prudence because I think the simplest form would be to say, "I don't know," and I doubt whether any one else does know. These things grow up and their beginnings cannot be identified. I have a strong suspicion that there is a certain rough likeness about it to Greek laws, but that would bring us into a long discussion. At all events, we can say that it is a great example that so interesting a paper—so remotely interesting a paper—should be read in our Society; and I have the greatest possible pleasure in seconding the vote of thanks which has been moved on the Author's behalf, and hoping—as has been hinted—that we may have another paper from him equally interesting. It could not be more so than this which we have had to-night.

Dr. STEFANSSON, replying, said it had been an honour for him to be allowed to read his paper to the Society. The paper had been greatly compressed, and perhaps it was difficult to understand some points; but perhaps on another occasion he would be allowed to make these points clearer.

A vote of thanks was passed to the President.

ORDINARY GENERAL MEETING.*

REV G F WHIDBORNE, M A FGS, SUCCEEDED BY
LIEUT.-GENERAL SIR H L GEARY, K C B, V P., IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed

The following paper was read by the Author —

*EVOLUTIONARY LAW IN THE CREATION STORY
OF GENESIS* By Rev A IRVING, B A, D Sc

“ὅυχι ἡ ψυχη πλεῖον ἐστὶ τῆς τροφῆς” . (Ἰησοῦς ὁ Ναζωραῖος) MATT vi, 25

“The antagonism between Science and Religion arises much more from a difference in the spirit and temper in the students of each than from any inherent opposition between the two”—ARCHBISHOP TEMPLE, *Bampton Lectures*, 1884, Lect viii

“Those who are conversant with the history of scientific ideas are aware that a belief in the gradual and orderly transformation of Nature, both animate and inanimate, is of great antiquity”—Professor Sir G H DARWIN, F R S , Presidential Address to the British Association, Cape Town Meeting, 1905

CONTENTS

- 1 Statement of the author's position (a) philosophically, (b) geologically
- 2 The Darwinian dogma non commensurate with the facts
- 3 Perspective of the Dual Revelation
- 4 Closer consideration of Genesis i, ii (1-3)
 Leading ideas embodied in the Creation Story—
 - (a) Manifestation of actual creative power,
 - (i) In the creation of *matter* (the monotheistic idea of verse 1)
 - (ii) In the creation of *life*
 - (iii) In the creation of *man* (a being endowed with spiritual faculties)

- (B) The meaning of "God said" : successive manifestations (phases) of *creative thought directing* the powers inherent in nature,
- (i) Luminosity of the nucleate planet—the *barysphere* (v. 2, 3).
 - (ii) The *expause* of dark intervening space (as seen in the "spiral nebulae") as solar and planetary gravitation increased (v. 6), evolution of the *lithosphere* and the *hydrosphere*.
 - (iii) Emergence of land above the universal Cambro-Silurian ocean, evolution of a land-flora (mostly of vascular cryptogams) from the previous cellular cryptogams, the former the ancestry in the Devonian and Carboniferous Ages of the present land-flora (v. 9, 11).
 - (iv) Clearance of the terrestrial *atmosphere* with greater condensation of the solar mass—direct solar rays reach our planet—enormous and rapid development of plant-life with a reduction of the proportion of CO₂ and an increase of that of O₂ in the atmosphere (v. 14, 15).
 - (v) Evolution (in the Mesozoic Age) of mobile air-breathers with organs of vision, amphibians, reptiles, birds (warm-blooded)—inception of mammalian life (v. 20, 21).
 - (vi) Fuller development of Tertiary mammals (warm-blooded) culminating in the *Homo* of the Quaternary Period (v. 24, 25).
 - (vii) The *Homo* endowed with spiritual faculties to exercise the overlordship of creation and to worship the Creator—a day without "an evening and a morning" (i, 27-30, ii, 1-3).

I. STATEMENT OF THE AUTHOR'S POSITION.

IN approaching this subject in the present state of our knowledge, we have to take into account many things which, with the advance of critical research and the widening of the geological outlook, are floating in the intellectual atmosphere at the present time. In doing so, one has to dismiss that notion of "inspiration," which requires a slavish adherence to the letter, and to look rather to the spirit and intention of the inspired record. Along with what is called "Monism" we can recognise that the universe of Being has an unity in itself like its divine Author; that in its origin it is one, though in its elaboration, manifold; without committing ourselves to the bald pantheism of the line of Pope, in which he speaks of the Creator as the soul of the universe,—

"Changed through all, and yet in all the same";

which moreover seems to "run on all fours" with Haeckel's later doctrine of "substance." We may fairly contend that what there is of truth in the materialistic monism is all contained

in that higher monism involved in the monotheistic conception of "creation" revealed on the first page of the Bible.

With Herbert Spencer and his school we admit frankly that there is a *limit* to "the knowable," so far as human knowledge can be advanced by the human intellect alone; but we part company with him and his school, when they in their arrogance declare all else to be unknowable. The "pure agnosticism" of George Romanes* does not frighten us, though we resent that *agnostic dogmatism*, which is so much the fashion in these days of shallowness—the shallowness of a newspaper-educated public. There is still a place, we maintain, for a *reasoned faith*, which recognises behind all phenomena and all manifestations of energy (in the whole range of "the knowable") beneficent Mind and Will (corresponding in *kind* to the *ultimate facts of our own consciousness*), which can choose its own way of making itself known in a measure to its spiritual offspring through the *spiritual intuitions of the human mind*. Without any conflict, therefore, with physical science we can claim a place in the highest philosophy for "Revelation," which all centres in the Incarnate Word.

"The acknowledgment of God in Christ,
Accepted by the reason, solves for thee
All questions on the earth and out of it,
And has so far advanced thee to be wise."—BROWNING.

Tennyson (*In Memoriam*) describes *knowledge* as—

"Half grown as yet, a child, and vain":

and reminds us that—

"She is earthly, of the mind,
But wisdom heavenly, of the soul."

In the deep consciousness of the "Ego," we say with him—

"I think we are not wholly brain,
Magnetic mockeries";

and can join in his prayer—

"Let knowledge grow from more to more,
And more of reverence in us dwell."

Man is in fact something more than a mere thinking machine.

In the geological outlook the present author's position is substantially that which he took in his graduation thesis in 1888,

* See his *Thoughts on Religion* (Longmans, 1904).

supplemented and published by Messrs. Longmans in 1889 under the title of *Chemical and Physical Studies in the Metamorphism of Rocks*. That was intended as an onslaught upon the extreme uniformitarian teaching of the Lyell School; and, so far as the writer is aware, has never been refuted. On the contrary, after most favourable notices in such papers as the *Scotsman* and the *Saturday Review*, with many other minor notices, its main contentions have been strengthened by such utterances as are found in the papers enumerated below,* while the fundamental conception, which underlies the more speculative parts of the dissertation, has been amply confirmed by the discovery of the frequent occurrence of "Spiral Nebulae," which were introduced to the acquaintance of the members of this Institute in the striking lecture of Sir Robert Ball, F.R.S., the Cambridge Astronomer, four years ago.† See further letters to *Nature*, by myself, vol. lxxii, pp. 8, 79.

II. THE DARWINIAN DOGMA NON-COMMENSURATE WITH FACTS.

Human knowledge is twofold: (i) there is the region of what we can observe through the senses, aided and supplemented by such powerful means as are furnished by the telescope, the microscope, the spectroscope and the photographic plate, together with the many and various devices of the chemical and physical laboratory, all of which (*pace* Mr. A. J. Balfour)‡ can be included under the head of "phenomena"; and (ii) there are deeper truths, which the mind reaches by reasoning through processes of *induction* from what is observed. These inductive processes lead us a good way in the direction of the *noumenon*, the inner entity of things, but with limitations: so there is always an element of mystery remaining, furnishing a field for speculation, and therefore for a *reasoned faith*, even in things

* *Vide* Professor Bonney's *Reade Lecture* at Cambridge (1893); Professor Sollas's Address on *Evolutional Geology* to Section C of the British Association (1900); Lord Kelvin's Address to the Victoria Institute (1897); and Sir Robert Ball's Address (or Lecture) to the same Society (1901). To these may be added Hugh Capron's *Conflict of Truth* (Hodder and Stoughton, 1903), a work in which things are looked at from the astronomical point of view, and possesses the great merit of literary power.

† *Trans. Vict. Inst.*, vol. xxxiii.

‡ Presidential Address, British Association, Cambridge, 1904.

which belong to "the knowable," in the Spencerian use of that term. It is therefore reasonable to be prepared for an even larger element of mystery in matters with which "revelation" professedly deals—God, man's relation to Him; the great Christian verities. Not even the most thorough-going materialist can charge us with superstition here, if he reflects upon what the human intellect can do in controlling and directing the powers stored in Nature. We recognise the mind or intellect of the Chemist behind the wonderful advances that have been made in our day in *synthetic chemistry*; the mind of a Bauer (*e.g.*) in the synthesis of *indigo*; the mind of an Emil Fischer in the synthesis of *sugar*.* And we feel ourselves on ground as logically safe, when we insist upon the *factor of directivity* (as lately ably expounded by Professor George Henslow)† being superadded to those factors that are included in the Darwinian dogma of *evolution by natural selection through survival of the fittest*. We recognise that as playing its part in those *variations* whereby "natural selection" is made possible. Such directivity, we maintain, cannot find its full explanation in mere chance changes in the environment calling into play new reactions of the *protoplasm* of living beings: still less can that account for the protoplasm itself, or for the differentiation which has come about between *man* and the *anthropoids*. On this point it matters little whether the genus *Homo* is structurally related more closely to the orang, the gorilla or the chimpanzee among the anthropoids‡ with whom he is said to claim a descent from a common ancestry; the important point is that anthropology and palæontology combine to testify to his appearance in the created series at the place assigned to him by the inspired writer, so far as that place could be assigned in language intelligible to an unscientific age in the history of mankind. The non-recognition of the distinction between the *Homo* of the naturalist and the *Man* of Scripture and philosophy may be said to constitute the fundamental fallacy that vitiates the whole argument of the *Romanes Lecture*, lately delivered at Oxford by Professor Ray Lankester, F.R.S.:

* To these we may add the name of Ladenburg, recipient of a Royal Society Medal in the year 1905.

† See *Christian Apologetics* (London, John Murray, 1903), a series of addresses delivered at University College, London.

‡ See Review in *Nature* of Duckworth's *Morphology and Anthropology*, vol. lxxi, p. 433.

a fallacy which, I think, Romanes himself would be the first to detect if he were still amongst us in the flesh. "Male and female created He them" (v. 27) is not mere rhetorical iteration, but emphasis of the fact that the higher creation of *humanity* lifted the human *anthropoidea* as well as the *anthropoideus* to a higher plane of being.

III. PERSPECTIVE OF THE DUAL REVELATION.

In the Bible, and therefore in every biblical subject, we must recognise the *progressive* character of the Revelation, as well as the living power, with which its different parts or "books"—its *βιβλία*—have spoken to the hearts and consciences of men and women for so many generations, with its variations of colour and perspective, as it has been transmitted to us through many men and many minds, the Holy Spirit of God taking hold, now of one, now of another type of human mind and character, and compelling it to give utterance to the eternal truths, which "the Father of our Spirits" would communicate to His children for their good. As the great Bacon has tersely expressed it—"The first creature of God in the works of the days was the light of the sense, the last was the light of reason, and His sabbath-work ever since is the illumination of his spirit" (Essay on "Truth"). And if that illumination of the human spirit has been, and is still progressive—whether we regard on the one hand that revelation of the "eternal Power and Godhead" given through "the things that are made" (as man is gradually learning to spell it out), that "*Lehre der guten Mutter Natur (menschliche und abmenschliche)*," of which Goethe seems to have had a better grasp and insight than either Spencer or Haeckel; or, on the other hand, that word of inspiration, which we maintain, runs through the Bible—we must be prepared to find in the earlier stages—in the one case and in the other—some crudeness of thought and expression. We have no more right to expect to find the fully developed "tree of knowledge" in its inceptive stages than we have to look for the fully developed morphology and external conformation of the giant oak of the forest in the germinal bud of the acorn, though potentially they are contained within it. The application of the figure is plain enough. The germ of all revelation is contained in the statement, with which the "Creation story" of Genesis opens—"In the beginning God created the heaven and the earth." The contention of this paper

is that the rest of that story is intended to unfold to primitive man the idea of an *orderly procedure*, whereby, under the *direction* of a Power, which is not nature, the present order of things has been brought to be what it is; that in fact the scientific doctrine of *Evolutionary Law* (as God's method of working) runs through it all. And the *evolution of humanity* (in its fuller and higher sense) is the pivot on which it all turns, as well as the goal to which it leads. For to man has been given a higher nature carrying with it the possibility of moral perfection on the one hand, and of moral failure on the other. But outside the range of humanity we cannot fail to see the truth of the inspired utterance—"God saw everything that He had made, and behold it was very good," each creature fulfilling the law of its being, while the *inorganic* world has its own laws and powers subserving and maintaining the *life* of the *organic* world, which controls them and directs them to its own ends upon this planet. All this is thrown into the form of what is as much a *poem* as the 104th psalm, the 28th chapter of the book of Job, or chapters 38 to 41 of that monumental book, without the mysticism ascribed to it by Swedenborgians.

In dealing with it we have a right to look at it in its professed relation to Revelation as a whole, as that culminates in Christ* and the New Testament; and we have to recollect that the inculcation of spiritual truth, appealing to the spiritual perceptive faculty, is from first to last the object of Revelation, to provide sustenance for the spiritual man through that perceptive faith or spiritual appetite, which is not a mere intellectual faculty, although it involves intellectual processes: that perception of things spiritual which "varies from man to man and depends largely upon character."† To this faculty the teaching of Christ and His Apostles appeals everywhere. Its exercise is intimately connected with the right disposition of the will, and so with all that goes to influence, or give direction to, *volition*. We recall the words of the Great Teacher: "If any man willeth to do the will of God, he will know of the doctrine whether it be of God"; and the spiritual side of faith is fully recognised by St. Paul, when he tells us that—"with the heart man believeth

* That is to say, *the Christ of history and of the Church*, not such a mere nebulous adumbration of the divine-human image as a physicist may find sufficient for his own intellectual and spiritual needs. (See Prof. Silvanus Thompson's address to the Victoria Institute, vol. xxxvii, 1905).

† Archbishop Temple, *Bampton Lectures* (vii), 1884.

unto righteousness." Such points serve to illustrate what we may call the higher philosophy of Revelation, and mark a stage of its development far and away beyond what we are justified in looking for in its inceptive stages.

The dual Revelation may be represented by two distinct geometrical planes, in which the intellect moves. One of these is the plane of *Nature*, as that unfolds itself to observation and inductive reasoning; the other is the plane of *spiritual intuition*. They intersect, and, while each of them may be regarded as indefinite in extent, they have their common centre in God. But this is not all; for they are not stationary. Each rotates round the common centre, so that they intersect at an indefinite and ever-varying series of points. In a highly developed nature therefore every state of consciousness has its spiritual and intellectual relations both to the individual soul and to the universe of Being.

When the idea is presented to our minds by the theologian of *γενεσις* or "creation" as that of "making things out of nothing," he presents us with what is to pure reason something unthinkable, as I pointed out years ago*; and this remains true, even when we take into account all that has been put before us of late as to the *ultra-gaseous possibilities of matter and the evolution of the elementary atoms*.† What does strike us with marvellous force is that the inspired writers—without attempting to give men scientific ideas of the origin of matter and the laws of nature—for the discovery of which God has endowed men with proper faculties—tell us much of the working of Almighty Power in forming and upholding and controlling the present order of things; and they recognise the *origin of life* simply as an *act of Divine volition*. In the "Creation Story," when it is fairly studied, as I have remarked in the paper already cited, "the difficulties of reconciling the 'Mosaic' account of the Creation of the present order of things with the teachings of Science are almost trivial as compared with the *power of that insight* which rejected everything not in harmony with the central monotheistic idea." On this Dr.

* A. Irving, "Things New and Old" (*Clergyman's Magazine*, Jan. 1893).

† "A belief in the evolution of matter is fast becoming not only possible, but inevitable": W. G. D. W., in *Nature*, Sept. 21st, 1905 (p. 506); a review of Dr. Le Bon's, *L'évolution de la Matière*. See also Prof. Wind, *ibid.*, Oct. 5th, 1905 (p. 574).

James Moorhouse, late Bishop of Manchester, remarked to me in a letter: "I think you have a grand penetrating thought in that remark. There are many scientific verisimilitudes in the Old Testament. Some people, seeing these, ordinarily assume that it was one purpose of Divine Inspiration to reveal physical truth. I think this is more than doubtful; but your admirable sentence above gives, I think, the true account of it. The organs of Old Testament revelation had a firm grasp of the monotheistic idea. This commands so wide a range of thought that it enabled them instinctively to reject much which was out of harmony with the general order of God's action in the physical world, and also to instinctively express those general aspects of physical truth which are in harmony with that order."

IV. CLOSER CONSIDERATION OF GENESIS I AND II (1-3).*

In the "Creation Story" itself we find that the author had in his mind two distinct conceptions of the *γενεσις* of the things which "God created and made" (ii, 3). In the first place we note that at three points, and three only, does he make the statement "*God created*"; and these occur where we can recognise, in the light of the teaching of science, as even he seemed to recognise, *definite departures* in the evolutionary process, whereby the present order of things, culminating in the "Man" of Scripture, has been brought about. To the author the whole range of created things seems to fall into three categories:—

- (i) *Non-living matter*, with its energy and properties;
- (ii) *Living beings*, with their power of motion, growth, and reproduction each after its "kind" or species;
- (iii) *The Spiritual Nature of Man*.

For he tells us—

God *created* the heaven and the earth.

God *created* every living creature (and therefore life).

God *created* man in His own image.

* Space forbids any attempt to deal with the question of the Mosaic authorship of Genesis, but one feels bound to suggest that, with the evidence of the Tel-el-Amarna tablets (first described to this Institute by M. Naville), and with the portrait of Amraphel and the translation of his laws (which we owe to the ability and industry of Dr. Pinches) the adverse criticism as to the traditional authorship of the Pentateuch must be largely discounted.

These are what we may call the three *primary factors* of what constitutes the order of nature in the fullest and most comprehensive sense. It is true that the author does not apply the term "living" formally to the vegetable kingdom, though he *implies* it in his description of the more prominent *life-functions* observable in that department of nature. Nor does he date back the appearance of life upon this planet to the early stage of its evolution, to which the revelations of Science carry us. Why should he? Who could have understood him, had he done so?

In the second place the author, whoever he may have been, seems to recognise *directive* intelligence guiding the powers inherent in nature along definite lines, in his frequent use of the expression—"God said," as introductory to his description of each broad and general *phase* of the manifestation of creative power, as it presented itself to his mind. This very expression used for marking off each such *phase* of what we may speak of as "the things that are made," seems to have been intentionally used to exclude the notion of the crude "carpenter theory," upon demolishing which Herbert Spencer has expended a considerable amount of second-rate ammunition. It was a "bogey" to the mind of no really educated man, nor to any real student of Science.

How *life* first came into play in the earliest *Protistæ* of the warm waters of the Cambrian or Pre-Cambrian ocean we know not.* Haeckel has so long persuaded himself that he knows, that he speaks of *abiogenesis* almost as a scientific truth, although it is only a *scientific belief*, which through "unconscious cerebration" seems to affect the colour and perspective of all his ideas. It is not likely in the nature of things that we could have structural forms preserved in the fossil state of either the earliest protozoa or the earliest algæ or fungi, though the graphite and anthracite of the Cambrian and Silurian stratified rocks have been probably ascribed rightly to the mineralisation of marine algæ. But all that is outside the intellectual vision of the author of the *Creation Story*, as is also the fauna of the palæozoic ocean; nor ought we to expect him to have anticipated the results of the science of palæontology, which is only

* "The mystery of life remains as impenetrable as ever, and in his evolutionary speculations the biologist does not attempt to explain life itself, but adopting as his unit the animal (*sc.* organism) as a whole, discusses its relationship to others and to the surrounding conditions." (Prof. Sir G. H. Darwin, F.R.S., Presidential Address, Brit. Assn., Cape Town Meeting, 1905.)

a century or two old. Such omissions in no way vitiate his conception of Evolutionary Law causing an orderly development of the universe, which is here presented to the mind of primitive man in the mineral, vegetable, and animal kingdoms, as the outcome of the action of beneficent mind and will behind it all.

This wonderful poem hath indeed its marvels, as we perceive in it anticipations of some of the most recent conclusions of science. Thus, if we allow for the "personal equation" in the human author, there is a clear substratum of scientific truth underlying the first three verses, such as would be expressed, if we paraphrased them freely, thus:—

"The beginning of things was the coming-into-being by the Will of God of the matter of the universe, as we know it. Such matter existed at first as a dark and formless waste (R.V. v. 2). Energy resulting in motion came into play, as a further result of the action of the Creative Spirit. As a consequence a further advance was made in the generation of heat and light, the matter becoming incandescent from its own heat."

The advance from the darkness of the formless (disintegrated and ultra-gaseous) condition of the matter of the universe, to the luminosity of the embryonic earth (by chemical combination), strikes the mind of the author as so marked, that he clothes the idea in a metaphor: "God said, Let there be light." He recognises that this globe was at its inception self-luminous, just as we see, with the aid of stellar photography, those separate centres of the "spiral nebula" to be, or to have been at the time, when they emitted the light which reaches the negative of the astronomer's camera. How did he get such an idea? How did he, thousands of years ago, thus anticipate one of the latest revelations of science, which, deduced by some of us* previously from the facts presented by geology and thermal chemistry, is now brought with such powerful conviction to our minds by telescopic photography?

The inception of the earth's *barysphere* as a separate centre of condensation in the rotating nebula was the prevailing idea in the author's mind in his speculations some seventeen years ago. In the present state of our knowledge, with new light thrown upon the evolution even of the "atoms" of the chemist, the explanation of such separate centres seems to come

* See A. Irving, *Chem. and Phys. Studies* (1889).

within the horizon of our mental vision; although here, as with vital evolution, we may be thrown back upon the hypothesis of a *directing influence* which eludes our powers of analysis.*

A shallow criticism could, a few years ago, ridicule the notion of light appearing in this globe before the sun and the stars are taken into account: but that criticism, like much other criticism of the same fibre, is now seen to have been a little "too previous." The earth was passing through the "solar phase" of its existence, and was a sun to itself.

As condensation proceeded about the original barysphere, the luminous gaseous matter of our planet, with that of the other planets and of the central orb of the system, became more and more separated, with an intervening dark *expanse* of space; the fluid matter ("the waters") of the earth was marked off from that of the other members of our system by terrestrial, planetary, and solar gravitation. Rendered poetically, "*God said, Let there be an expanse in the midst of the waters.*"†

Loss of heat by radiation into space allowed the gradual liquefaction of the mineral matter of the globe, with a gradual formation of a thin "crust" in the "pre-oceanic stage," the two together making up the "lithosphere" of the globe; and with further fall of temperature of the whole mass by radiation of heat, the watery and other vapours began to condense upon the still hot crust, giving rise to such widespread vulcanicity as that of which we can read the evidence in the moon's surface; the globe became in time covered with a mantle of hot water, above which, as a physical necessity, there must have floated a dense "atmosphere," impervious except even to the most diffused light from the sun, even if that central orb had, at that period of the history of our solar system, entered upon its *solar phase* of condensation (see Lord Kelvin's address to the Victoria Institute, 1897).

At the stage in the history of our planet following upon the formation of its "hydrosphere," we may fairly place the Cambrian and Silurian fauna of the universal ocean, the temperature of which was not less than 80° F., over the whole

* Mr. Jeans' phrase "gravitational instability" is a useful one in this connection. (See *Nature*, Oct. 12th, 1905, p. 591.) The heaviest and most refractory metals, such as platinum, would be the first probably to form the nucleus of the barysphere, but a gravitational centre once formed, gravitation would be rapidly augmented.

† For an able discussion of the term "the waters," see Hugh Capron's *The Conflict of Truth* (chap. xiii.)

surface of the globe, every species of which has since become extinct. That fauna was marked (*inter alia*) by the incipient development of organs of vision in the trilobites and (later) in the palaeozoic Ganoid fishes in response to the feeble light which reached the now non-luminous earth from the sun and other luminous bodies. The bulk of that ocean included the present waters of the globe added to the present polar ice-caps and the subterranean waters.

As the lithosphere and the hydrosphere cooled, so the atmosphere gradually cleared, as a physical necessity; while contraction of the former caused its form to depart from the strict geometric regularity of a spheroid: the water collected into the primitive ocean-basins as the simple effect of gravitation, and "the dry land appeared," to yield the land-flora which, beginning in the Devonian, reached its maximum development in the Carboniferous period, as our planet was more exposed to solar rays, under the influence of which the richly-laden atmosphere of the period furnished an ample supply of the food-stuff of plants (*carbon-dioxide*, CO_2), along with a plentiful supply of *free oxygen*, which is as necessary for the respiration of plants* as carbon-dioxide and sunlight are necessary for the assimilation by them of carbon. A temperature of 70° to 80° Fahr. seems to have prevailed universally.

It may be fairly maintained that the first ten verses of the first chapter of Genesis cover, as a sketchy outline (wanting of course in many details) the evolutionary history of our planet down to about the age of the Old Red Sandstone; and that the next ten verses cover that stage of the same progressive development of our earth and the solar system, which is covered by the Carboniferous and Permian (or Dyas), considered as one continuous period with the Devonian, which in a broad sense palaeontology seems to justify.†

When we look at the abnormal facies of the English Trias, that period seems to present a great break in the continuous development of life-forms; but this is less the case in the German Trias, and in the Trias of the Eastern Alps we find the actual palaeontological record of the progressive nature of the changes

* See Stirling, *infra*. The hypothesis that the vital action of vegetation originated the oxygen of the atmosphere is utterly untenable.

† For a more extensive study of the physiographic conditions of our planet during the Palaeozoic age, see Prof. Hermann Credner, *Elemente der Geologie*, 6th edition, pp. 408, 441, 465, 495, 506, 534, 535; also Prof. Zittel, *Aus der Urzeit*, pp. 226-229, 254-262.

through which life-forms passed, from the fauna which broadly characterises the palæozoic, to that which broadly characterises the Mesozoic series of stratified rocks.* It is well to emphasize the fact that there was no occurrence even at that stage of wholesale or sudden exterminations, or of the sudden appearance of new forms on a general scale. Yet in a general sense we can differentiate the life-forms of the one period from those of the other. It is only in the Mesozoic age, when we may fairly suppose that the composition of the atmosphere became pretty nearly what it is at present, that *warm-blooded animals, which require not only a plentiful supply of free oxygen, but also the rapid elimination of CO₂ from their blood,† appear in the form of birds*; while the same period of the earth's history was marked by the appearance of "great sea-monsters" (*Ichthyo-, Plesio-, and Pliosaurus*), along with a prolific and abundant marine fauna including bony fishes; and *phanerogamous plants* seem to have gradually attuned their mode of existence to the present constitution of the atmosphere.‡ Broadly, as the result of evolutionary change, *pari passu* with changes of physical conditions in the environment,§ we can recognise a gradual and progressive advance in the life-forms which appear upon the stage of the world, over those which prevailed in palæozoic times; and without doing violence to the narrative freely interpreted, on principles already assumed, we may fairly connect all this with what is stated in verses 20–23 of Genesis i.

When we pass on to the Tertiary age, we find that this again presents its broad general characteristics, the most noteworthy of which is the great development of the *mammalia*, the first dawn of mammalian life having appeared rather late in the Mesozoic age,|| though only to such an extent as to have been quite subordinated to the other great classes of the vertebrata; and the tertiary mammals range in an unbroken series down to the present day, as the ancestry of the *mammalia* now living on the globe.

* The present writer's work in this department of geology may be found summarised in his paper, "Twenty years' work at the Younger Red Rocks," *Geol. Mag.*, August, 1894.

† See *Nature*, vol. lxxii, p. 355, for a remarkable lecture on Respiration by Dr. Stirling, at the Royal Institution.

‡ To reach their full development in Tertiary times.

§ Chiefly—(i) lowering of temperature and diminution of salinity of the ocean waters; (ii) purification of the atmosphere from an over-dose of CO₂.

|| No one, I fancy, believes in the *Microlestes* now, any more than in the *Eozoon Canadense*.

The land-fauna reached its full development, culminating in the genus *Homo* during the Tertiary and Quaternary Periods, in the latter of which the *Homo* first appeared, so far as any trustworthy evidence carries us.* The fact, that some of the largest mammals (like the whale) acquired aquatic habits of life, is a matter of detail, of no more significance than the converse fact, that many molluscs have acquired a terrestrial mode of existence, so far as the general view here adopted is concerned; and this is all that we can reasonably expect to be recognised in verses 24-26 of the poem under consideration.

The Evolutionary Cycle was completed, and it only needed the superaddition of the mental and spiritual faculties, with which man is endowed, to give to him that place in creation which is assigned to him in the remaining verses. These tell of his moving since on a *different plane of evolution* to the rest of the created series, during that "*seventh day*" without "*an evening and a morning*," in which we are left by the inspired writer to believe we are still living, the period in the history of our planet marked by the progressive "illumination of the human spirit."

In looking at the Creation Story as we have done in this paper, the orderly *sequence of essential facts*, as they are stated, has been regarded as of primary importance. In the Story itself some of the statements that occur are parenthetical, they add to the details of the picture, but form no part of its essential outlines. The introduction of "an evening and a morning, one day, a second day" (R.V.), and so on, may fairly be regarded as the frames, in which the story is presented in a series of minor pictures, as a great help to the memory when writing was rare, intended to serve and at the same time to indicate certain recognisable stages in the unbroken forward movement of the whole, tying it on to things and associations of ordinary human experience, but of no temporal connection with those stages or "days." Those stages are further emphasized by the poetic expression "God said," as if to remind us (at each advance in the general evolution of "the things that are made") that it was all the result of the continued operation of one and the same Creative and Directive

* The evidence supposed to be furnished by "eoliths" has now completely broken down. See Prof. M. Boule in *L'Anthropologie*, tome xvi, No. 3, 1905. The present writer has long maintained that owing to the *vitrescency* of the silica of flint, all the features presented by so called "eoliths" can be explained as *accidental*.

power, as distinguished from the "gods many and lords many" of the old Assyro-Babylonian cosmogony, which lay in the background of the writer's mental vision: but in each case of its use, as much a figurative expression as that which the psalmist uses, when he sings, "By the word of the Lord were the heavens made, and all the host of them by the breath of His mouth." (Psalin xxxiii, 6.)

In the present state of our knowledge we may perhaps say of Genesis i and ii (1-3)—that it is a descriptive poem, the production of a genius gifted with exceptional insight supplemented by the special illumination of the Spirit of God, and wrought with things that are matters of ordinary observation, implying a general sequence almost suggesting *evolutionary law*, without forestalling the results of the slow operation of the human mind in arriving at its present standpoint; but intended to drive home to the understanding of primitive and untutored minds the great *monotheistic idea*, which lies at the foundation of all the Revelation contained in the Holy Scriptures, and is enunciated in the first verse of the Bible.

Supplementary Note A.

Since this paper was written the author has been disappointed—after reading carefully twice over the address of Professor Sir G. H. Darwin to the British Association at Cape Town—in coming to the conclusion that the mind of that distinguished scientist is almost a blank as to the teaching of *thermal chemistry*. Yet this is a real factor even of "the first order" (as a mathematician would say) in any theory of the evolution of worlds which starts with the nebular hypothesis. If we reflect, for example, on two most prominent instances, the *stability* of the compound silica (SiO_2), and the *stability* of the water molecule (H_2O), as some indication of the enormous thermal value of the combinations which have given us these most widely distributed compounds, and reflect further upon the high temperature of the flame of the oxy-hydrogen blow-pipe,* we can scarcely fail to see the importance of *heat of combination in the evolution of molecular matter*, as we know it. To proceed by a leap from the discussion of the "nebula" to the discussion of a hot molten sphere revolving and rotating in

* One gramme of hydrogen in burning into 9 grammes of steam yielding over 34,000 thermal units, that is to say, heat enough to raise 34,000 grammes of water from 0°C . to 1°C .

space is scarcely philosophical. It is the old story of the "mathematical mill," the output of which depends upon what is put into it. It leaves a gap in the argument which cannot be bridged over by any speculation upon the heat-giving power of radium and its congeners. If these are *endothermic* entities, whence the original heat which took part in the evolution of their atoms?—A. 1.

Supplementary Note B.

At the Secretary's request I offer a few remarks upon *The First Chapter of Genesis compared with Science and Criticism*, by the Rev. D. M. Berry, M.A., published in Melbourne, but *undated*.

There is very little in this pamphlet which is new to me. Some good points seem to be made, but there are many statements and assumptions which I should call in question. It is vexatious to find the writer consistently misquoting by writing "heavens" for the "heaven" of the R.V., and generally in the A.V. of chap. i. Mr. Berry still clings to the idea of "the waters" meaning the hydrosphere of the globe, and gets (it seems to me) in some confusion in consequence over the first appearance of *light* upon our planet. He would have got more help from Hugh Capron's *Conflict of Truth* than by quoting from Mr. Clodd, a rather "broken reed" to lean upon. His whole conception of the "firmament" is vitiated by his overlooking the fact that the proper word is "expanse" (R.V.). In making no reference to the *spiral nebula* he is not up to date; and he follows too blindly Lord Kelvin's impossible hypothesis as to vegetation supplying the atmosphere in the first instance with O_2 from CO_2 , since oxygen is as necessary for the stimulus of protoplasm in the living vegetable cell as in animals. Mr. Berry moreover quotes the existence of *graphite* in the Archean rocks as evidence of vegetation. This, I maintain, is an exploded fallacy, as much so as the *Eozoon Canadense* since Möbius' monograph appeared in 1880. (See A. Irving, "On the Genesis of Diamond and Graphite," *Chem. and Phys. Studies*, App. ii, note L; also paper in the *Chemical News*, No. 1505.)

Nor is he up to date in the matter of Egyptian chronology; for he seems to be unacquainted with the recent advances made in that department of research, as described by Prof. Flinders Petrie in a lecture to the Victoria Institute. At the same time I should be prepared to endorse some of his criticisms of the views of Dr. Driver, whose strength as a Hebraist seems to bear

an inverse proportion to his strength as a geologist. In Canon Driver's paper in *The Expositor* (January, 1886) on the "Cosmogony of Genesis," the best thing seems to me to be his quotation (p. 44) of Dr. Rausch's view of "the six days" as "six Divine thoughts or ideas realised in Creation"; and that is substantially what I have contended for in my paper. With the general aim and drift of Mr. Berry's paper I am in full sympathy, though he wants the scientific "touch" of a real worker in science.—A. I.

Supplementary Note C.

Of all our leading scientists it may be said that not one surpasses Sir Oliver Lodge, Principal of Birmingham University, in power of insight into the "philosophical" aspect of great physical truths. Among his more important utterances in the last two or three years the following may be mentioned:—

Romanes Lecture, at Oxford, 1904.

On Mind and Matter: Morning Post, Oct. 13th, 1904 (a telling criticism of Haeckel).

On Miracles: Ibid., Oct. 25th, 1904.

The Reality of the Unseen: Ibid., March 13th, 1905.

On Psychical Research: The Times, Nov. 14th, 1905.

DISCUSSION.

Dr. W. WOODS SMYTH, F.Med.S.—Mr. Chairman, I am thankful to the Society for bringing this paper before us, and also to Dr. Irving for having introduced it and for the clearness with which he has presented several points.

In a general sense Dr. Irving considers the first chapter of Genesis to be a poem or poetical. I dislike to disagree with anyone, but still I must hold that is not the case. The poetic diction of the Hebrew is everywhere distinguished from prose. And the first chapter of Genesis is absolutely without indications of the poetic. It is strong on the contrary.

Again, Dr. Irving has an idea running through that the fact of its being in the form of a poem may atone for what we may call its shortcomings in some way. What I want to say is, the chapter has

no shortcomings. It is absolutely unerring. It is, if there is no other portion of the Bible so, verbally inspired. I have investigated that chapter in the Hebrew, letter by letter, in the fiercest light of modern and recent science, and I can find no discrepancy; and I should like to hear anyone here put it to the test and see if they can find an error or mistake. It is a revelation from God. We know it was not designed for the first or second age, but for all ages. Its simple beauty is perfect. Philosophically and scientifically considered, it is unsurpassed by any literature in the whole world. It is unapproached, because it is in a language that, better than any other, can express the course of Nature.

This language is distinguished by its tenses. These tenses are not tenses of time, but express modes of action. Now it is the modes of action that are of all importance. One tense that is used 49 times is the imperfect, and it means that which is the incoming, the unfinished, the continuous. It is used throughout, and there could not be a better expression of evolutionary law than the incoming, the unfinished, the continuous; or to put it in the language of Duncan Weir, who did not believe in evolution, it is expressing action in process and progress of evolution.

Then the next point that I would like to refer to is the expression "God said." Dr. Irving thinks this implies directivity, but the true explanation of it is found in John i, 1. "In the beginning was the Word and the Word was with God, and the Word was God. The same was in the beginning with God. All things were made by Him."

I would like to refer to a few special points. *Directivity* I look upon as absolutely unscientific and unscriptural. None of us believe in directivity in regard to inorganic evolution. We know that all the changes from the nebulous state down to the present changes that are going on in this earth, namely, shifting of sea and land, are all due to the properties, previously impressed upon matter and energy in the beginning. With regard to organic life, God gave it all that dowry of attributes which has led to progressive evolution up to man himself, and we have in the fact the grandest light possible thrown upon the moral responsibility of man. Life is an independent factor, and was always held responsible for its actions from the lowest form up to man. If it failed, death was the unfailing penalty.

Professor ORCHARD.—To me the title of this paper was in the nature of a surprise, a surprise that the Rev. Author should attempt to harness the evolution theory to the revelation of the Divine record given us in Genesis, and this surprise, I am sorry to say, was not diminished by the perusal of the paper.

I notice, on page 75, that the author observes that the contention of this paper is that the creation story in Genesis is an attempt to unfold to primitive man the idea of an orderly procedure, whereby, under the direction of a Power, which is not nature, the present order of things has been brought to be what it is. I agree with him: but he goes on to say that in fact the “scientific doctrine of Evolutionary Law, dimly conceived,” runs through it all. How do these statements tally? Some sort of proof ought to be given.

I agree with what the speaker who preceded me says with regard to the history not being a poem; the whole structure is that of prose, not of poetry. Poetic figures implied do not make the history a poem. We do not want poetical licence. All the six days refer to completed acts.

I am sorry to see on p. 79 we have this idea of the history being a poem. It is nothing of the sort. I must protest against the attempt of the lecturer to force upon the author a theory which he almost in set terms disavows. On p. 77 Dr. Irving tells us that the author of the history of Genesis believes that God created, not evolved. It is rather strong to say that the author of this record believes in evolution. Could he have used terms which more emphatically were out of harmony with evolutionary hypothesis? A former member of this Institute, Dr. Samuel Kiuns, pointed out and proved that the history of creative events set out in that Divine record in Genesis is in the order in which modern science believes it to be.

Mr. ARTHUR SUTTON.—May I ask the Lecturer if he would kindly define what he means by the term “evolutionary law”? It is quite possible we may have misunderstood him in the way in which that term has been used.

Dr. IRVING.—Evolution is the idea which has taken hold so extensively in recent years of the scientific mind, that the sum total of the universe, so far as we know it, is the result not of chance, on the one hand, or (I may venture to use the expression) of capriciousness on the other; that the Author of Creation has unfolded to us

some of His thoughts in enabling us in modern times to see how those properties with which he endowed matter have worked together to produce the sum total of results. There is a great deal of what the first speaker said with which I heartily agree. Of course I cannot pretend to touch on what he said on the Hebrew side of the question. I am not a Hebraist, but I gladly accept the strong support given to my contention from that quarter.* I have taken the revised version of that chapter in the Revised Version of the Bible as sufficient for my purpose in dealing with the subject-matter. There is no doubt much might be said and has been said, and seems to be well said on that point, but I do contend that *evolution includes the immanence of Divine power*. I do not believe that God wound up the universe like a clock which runs down. In the nature of things, if God creates, His will and energy manifests itself; and evolution expresses that idea, when made to include directivity. It is difficult to explain in a sentence the word evolution, but I think we may fairly maintain that it may include that. If we believe in the existence of creative power at all, it is reasonable to include in our idea of evolution directive influence, which is identical with the genetic principle of nature. I see no reason why creative power, once acting, should cease acting; and you see that life was given not once for all, but is still given mediately for individual existence, as the continual manifestation of Divine volition; and so far I maintain we are fairly on harmonious grounds with the Bible revelation, when we talk of evolution. On this point Mr. Woods Smyth and Professor Orchard are mutually destructive. Some of the former's most sweeping remarks involve *petitio principii*, and his reference to St. John i, involves an anachronism.

This planet has been itself a product of evolution, as dissipation of energy has proceeded.

In reply to Professor Orchard, I can only say that he seems to have failed to catch the drift or aim of my humble attempt to harmonise in the light of the teaching of the "New Geology"; and I absolutely decline to accept the late Dr. Samuel Kinns as a

* More especially the use of the imperfect (continuous) tense in the Hebrew, which comes out so strongly in the Greek imperf. indic. as distinguished from the aorist. Thus, "God was creating"; "God was saying."—A. I.

competent exponent of what "modern science believes" or teaches in this first decade of the twentieth century.

MR. WOODS SMYTH.—If we accept God's directivity we make Him directly responsible for bringing in life to be destroyed and responsible for the death traps that are in our organisation; but evolution explains these. Life was made independent, and God demanded obedience from life and gave it a law, which is the law of God we have in our own Bibles. It is the law in a dynamic form.

REV. DR. IRVING.—Man is endowed with will and consciousness, and the power of knowing right from wrong; but there has been a general evolution of human powers. There has been an evolutionary illumination of the human mind, as there has been an evolutionary development of living creatures upon this globe, as there has been an evolution of the inorganic materials of which the globe is made up as well as of its structure. There is a three-fold evolution.

THE CHAIRMAN (Lieut.-General GEARY).—We are all agreed this evening has been most interesting, and we are deeply indebted to Dr. Irving for having brought this subject before us. I feel that a short discussion does not exhaust the subject. It will give us something to think over, and we shall read the lecture over again with renewed interest. I think I am only expressing the wish of everyone here in offering Dr. Irving our best thanks for his kindness in coming here and reading the paper.

THE SECRETARY seconded this.

I think our Lord Himself has given us a rule. He said, "My Father worketh hitherto, and I work." The Father's work in the realm of Nature was completed, and Christ's work in the realm of Grace was begun.

The meeting closed with votes of thanks to the Chairman and his predecessor in the chair.

COMMUNICATIONS.

From Rev. JOHN RATE, M.A. :—

I have read with interest the Rev. A. Irving's article on evolutionary law, in which he says: "We maintain for a reasoned faith

which recognises behind all phenomena beneficent mind and will, corresponding in kind to the ultimate facts of our own consciousness which can choose its own way of making itself known in a measure to its spiritual offspring through the spiritual intuitions of the human mind." Nothing can be more appropriate as an illustration of this than the words of Sir Isaac Newton in his *Principia* to the third edition A.D. 1726, published by the Royal Society.

Dr. Halley, the great mathematician and astronomer, has prefixed a Latin deduction closing with these words:—

Nec fas est propius mortali attingere Divos.

I think in Roubiliac's statue of Newton in Trinity College, Cambridge, these words occur:—

"O genus humanum ingenis superavit."

Twickenham, Jan. 14th, 1906.

From Rev. G. F. WHIDBORNE:—

I very much regretted that I was obliged to leave the Meeting before the discussion of my friend Dr. Irving's paper, as there was much that interested me in it.

There is, however, one remark that I should like to be permitted to make even now. It seems to me that in any attempt to correlate the "days" of Genesis with cosmogonic periods it is well to look out for coincident points. One such may perhaps be found in the beginning of animal life. In Genesis we find this in the fifth day, in Geology in or before the Cambrian period. Does not this suggest that it may be that all the formations from the Cambrian upwards may be included in the fifth and sixth days? If so, Geology has absolutely no details to give us of the earlier days. In other words, the Geologic Record may begin with a gap—an imperfection which if Evolutionists realised, they might find very useful to them. At all events, while the waters brought forth abundantly the earliest forms of animal life we know, vegetable life appears abruptly with the land, and it seems a little puzzling to imagine it evolving from aquatics. May it have had a long unknown past history before the Cambrian time?

From Mr. HENRY PROCTOR, M.R.A.S.:—

May I be permitted to add a few remarks to Dr. Irving's excellent paper on "Evolutionary Law in the Creation Story of Genesis"?

The language of the first chapter of Genesis seems to bear out Dr. Irving's view that it is a story of evolution. Verse 11, for example, says, "Let the earth *bring forth* (produce) green herbs and vegetation," "βλαστήστω βοτάνην" (lxx), and v. 20, "Let the waters *swarm* with swarms of living souls" (Heb.), or as in French R.V., "Let the waters *produce*, in abundance, living beings."

And in verse 26, the purpose of God in evolution is clearly stated, "Let us *make* man in Our Image, after Our Likeness, and let them have dominion . . . over all the earth." A purpose which the Scripture states is not yet accomplished. For "NOT YET do we see all things put under" man as the vicegerent of God, but in the "age to come," this authority will be given to all mankind who shall have attained to the image of God. Up to the present Christ alone is said to be the impress of His Substance, "the express image of His Person, but He is the *first-born* among many brethren, who are fore-ordained to be conformed to His Image." For not unto angels hath He subjected "the inhabited earth to come," but to Jesus as the "First-born of an entire creation"—that is, the New Creation which shall have dominion over all the earth. This is the end and purpose of Evolution, as foreshadowed in Genesis i and completed in Revelation xxii.

Dr. IRVING.—My friend Mr. Whidborne will find many "coincident points" in the *Synoptic Parallelism* appended to this paper, which, I may add, was in MS. before the paper was written. As to the inception of animal and vegetable life on this globe, I have nothing to add to what is stated on p. 10. The infra-Cambrian stratigraphical "gap" is well known, but is a small thing in the totality of planetary evolution. To Mr. Proctor I may be allowed to say that man's overlordship of creation is a *fact*. It is, however, not absolute, but relative. Under the illumination of "God's Spirit working in capable men,"* man has advanced a long way in controlling the powers of nature to his own ends. I thank Mr. Räte for the "*nec propius*" caution of Dr. Halley.

* Archbishop Benson, Sermon before the British Association for the Advancement of Science, Southampton Meeting, 1882.

ORDINARY GENERAL MEETING,
WAS HELD IN THE ROOMS OF THE INSTITUTE, ON
MONDAY, FEBRUARY 5TH, 1906.

COLONEL HENDLEY, C.I.E., IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed.

The following elections took place :—

MEMBER :—Joshua Ratynski Hershensohn, Esq., Pietermaritzburg.

ASSOCIATE :—Edmund Eaton, Esq., C.E., Ticehurst.

The following paper was read by the Author :—

BIOLOGICAL CHANGE IN GEOLOGICAL TIME.

By Professor J. LOGAN LOBLEY, F.G.S., F.R.G.S.

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INTRODUCTION.

THE paper read before the Victoria Institute last session, entitled "Geological Exterminations,"* seems to call for a more extended reply than the time allowed for discussion permitted. Any adequate consideration of the subject must be founded upon, in the first place, a careful estimate of the facts revealed by palæontological research not only with respect to the termination of the existence of species and genera, but also with respect to the character, morphological and physiological, of the species and genera existing both before and after these extinctions. And, furthermore, notice must be taken of the persistence of certain genera through vast geological periods during which other and allied genera had but a comparatively short existence.

* "Geological Exterminations," by Charles B. Warring, M.A., Ph.D., *Journal of the Victoria Institute*, vol. xxxvii, p. 165.

With the object of inviting the Institute to this fuller consideration of a most important subject, I have here briefly brought together some of the data which appear to be necessary to form a sufficiently stable and wide basis for a sound conclusion.

In the consideration, however, of the results of palæontological observation and research, we ought never to lose sight of that most important truth that all the geological data available, and all that ever will be available, for our use must be but a most imperfect record of the past. The fossiliferous rocks now existing are but the remnants that have been left of those vast accumulated deposits formed in the past after having been subjected for enormously prolonged periods of time to the action of the disintegrating forces of nature.

Thus, for example, *not to go further than our own well known islands of Great Britain and Ireland*, the Jurassic rocks, now restricted, to the south-east side of a line from Axmouth, in Devonshire, to the mouth of the River Tees, have left small remnants in the Hebrides and Sutherlandshire to attest their former extension over parts of the area that is now Great Britain. The Cretaceous rocks, now confined to the southern and eastern counties, have similarly left small remnants in Mull and Morven on the west and fossils near Aberdeen on the east of Scotland; and as far north-west as Antrim, in Ireland, the uppermost formation of the Cretaceous, the Chalk, is found preserved by a protecting overlying sheet of volcanic basaltic rock, from which it is seen that this formation once extended over what is now part of England and the Irish Sea and away to the extreme north of Ireland. A small outlier of the Woolwich Beds at Newhaven, on the coast of Sussex, shows the former extension of Tertiary deposits over the whole area of the older Cretaceous rocks now forming the surface between Croydon and the south coast. At St. Erth, in Cornwall, there are remnants of Pliocene deposits 290 miles west of the nearest beds of this age.

While, therefore, the Jurassic rocks now spread over only the Midlands and the south and east of England, there is evidence that they once covered nearly the whole area now included in the British Islands and adjacent seas,* and that the Cretaceous rocks, now confined to a still more limited area, had an equal, if not greater, extension, while the Tertiaries furnish grounds

* Highly improbable that the Jurassic rocks extended over North Wales, the Lake District, the Border Hills of Scotland, and the Highland Mountains, or that the Cretaceous rocks extend over these regions. See my *Physical History of the British Isles*.—ED.

for a similar conclusion. The extent of Jurassic rocks removed from the region of these islands, not including sea areas, may be estimated at about 100,000 square miles, of Cretaceous rocks 110,000 square miles, and of Tertiary deposits 115,000 square miles, the total area of the British Islands being 121,700 square miles. So that in this region alone only a very small proportion is left of these once wide-spreading Neozoic groups of formations.

Again, in Ireland the Coal Measures evidently once covered the whole of its interior area, while now it is found that almost the whole of those deposits, extending over fully 16,000 square miles, and containing most valuable beds of coal, have been removed and swept into the sea. The thickness of these destroyed rocks was very great also. Professor Ramsay estimated that fully 10,000 feet thickness of Lower Silurian (not Coal Measures) slate had been removed from what is now the summit of Snowdon.

The great unconformabilities and lacunæ are other obvious illustrations of the imperfection of the geological record. In Somersetshire, the Carboniferous Limestone, highly inclined, is succeeded immediately by horizontal Inferior Oolite. Under the London area Cretaceous rocks lie upon Devonian, while below Dover the Coal Measures have been reached immediately below Jurassic rocks.

Of the animals and plants living at the time of the deposition of the various sedimentary rocks of the globe, only a small proportion have left fossil remains, even of marine testacea, and of land animals and plants very few indeed, for the great bulk of marine shells would be broken up and destroyed by wave action, while of terrestrial animals and plants only the remains of those would be preserved that escaped decay and decomposition by entombment under exceptionally favourable conditions for their preservation. And finally, it must be remembered that only in a few places, each of very limited area, and aggregating altogether not one-millionth of their extension at the surface, have the sedimentary rocks been carefully examined.

But very imperfect as this record of the rocks undoubtedly is, it gives, as far as it goes, a true revelation of the successive faunas that have peopled, and of the successive floras that have clothed the globe. What it tells us is therefore so much positive knowledge of the highest value, although it be but a fragment of the great story of Creation.

GEOLOGICAL TIME.

An adequate consideration of the causes of biological changes also requires attention to the duration of geological time, for

the amount of the time during which these changes have taken place is the frame, so to speak, of the picture that contains all the details of the whole. The magnitude of that frame must therefore be known before we can fairly judge of the factors that have produced the components of the picture.

It is now but a common-place to speak of geological time as vast, although only half a century ago this great fact was most warmly and obstinately disputed. But though an enormous period is now undisputed, its duration can only be realised by those who have paid some attention to the details of geological science. The facts establishing the very high antiquity of the earth are so many, so striking, and so certain, that the conclusion is obvious, and yet that conclusion is often overlooked. Only a few of these facts can be noticed here, and these very briefly.

The enormous thickness of the sedimentary rocks, averaging at least 50,000 feet,* at once requires us to allow for their formation as accumulated deposits a vast period of time. When further it is found that these accumulations of sediment constitute $\frac{1}{1000}$ of the land area of the globe, or 50,000,000 square miles, giving 500,000,000 cubic miles of accumulated detrital matter, we are compelled to greatly extend our conception of geological time, even if we allow a much more rapid destruction of surface rocks and deposition of their detritus, throughout geological time, than now. But careful examination of the rocks, even of Pre-Cambrian rocks, gives no evidence of more rapid destruction and deposition in the past than at present. "One of the very oldest formations of Western Europe, the Torridon Sandstone of North West Scotland," Sir Archibald Geikie says, "presents us with a picture of long-continued sedimentation, such as may be seen in progress now round the shores of many a mountain-girdled lake. In that venerable deposit the enclosed pebbles are not mere angular blocks and chips, swept by a sudden flood or destructive tide from off the surface of the land, and huddled together in confused heaps over the floor of the sea. They have been rounded and polished by the quiet operation of running water, as stones are rounded and polished now in the channels of brooks or on the shores of lake and sea. They have been laid gently down above each other, layer over layer, with fine sand sifted in between them. So tranquil were the waters in which these sediments accumulated, that their gentle currents and oscillations sufficed to ripple the sandy floor, to arrange the

* The aggregate maximum thickness of the sedimentary rocks is fully 250,000 feet.

sediment in laminae of current bedding, and to separate the grains of sand according to their relative densities."*

The testimony of the Torridon Sandstone is repeated by every succeeding formation, and so we may estimate geological time by them and get a conception of it by the witness of a few. The Old Red Sandstone of Herefordshire, 10,000 feet thick, is an accumulation of grains of quartz and clay, derived from the surface of older rocks. The Carboniferous Limestone of England has a thickness, visible to any visitor to Clifton, of 5,000 feet, all of carbonate of lime extracted from sea-water by marine living forms which has received its solution from the land. Our English Chalk is over 1,000 feet thick and occupies thousands of square miles after very great extensions have been removed, and the whole of this vast mass of carbonate of lime has been formed by the accumulation of minute shells and their more minute fragments all produced by microscopic animals. A single foot of thickness of this wonderful deposit, the work of countless generations of myriads of microscopic animals, would require fully 1,000 years for its accumulation, giving at least a million years for the formation of the Chalk alone. The great Nummulitic Limestone we see in France, in Egypt, and as far east as China, has a thickness in the south of France of 3,000 feet all similarly accumulated. The Nagelfluhe of the Rigi in Switzerland, is an accumulation of water-worn pebbles, all rounded fragments of hard rocks, of 5,000 feet in thickness. In Asia, too, the still newer Pliocene deposits of the Punjab of India, attain the enormous thickness of 14,000 feet. All these, and many other vast deposits, were accumulated not contemporaneously but during quite different periods of geological time.

The mean rate of surface erosion to produce the detritus given to the sea at the present time by six representative rivers, the Po, Hoang Ho, Rhone, Ganges, Yang tse kiang, Mississippi, and the Danube, is 1 foot in 3,090 years, or $\frac{1}{3090}$ of a foot in one year.

When such facts as these are duly weighed it will, I think, be admitted that geologists have very good grounds for estimating geological time at a minimum of 100 millions of years.

The attempt made some years ago on physical grounds to reduce this estimate has now lost its force through the discovery of radio-active bodies, which are potential givers of renewed heat to the earth and the sun. Professor Darwin, now Sir George Darwin, showed that the assumption of the permanency

* Geikie, *Text-Book of Geology*, p. 76.

of the deviation from spheroidicity of the earth since the solidification of its exterior could not be granted. Two other assumptions, the secular cooling of the globe and the expenditure of the sun's heat, I ventured to contend, could not be allowed either, for, as I then wrote, "we know little of the interior constitution of the sun, and that therefore we are ignorant as to whether there may not be some process by which the solar heat is maintained," and that in the so-called new star, "Nova Persei," there was a reminder that accessions of heat and light by suns might be received at any period of their existence, and if in this case the accession was sudden and great, he would be bold indeed who would say that an accession of heat and light might not be given slowly and to a small extent. Since then the discovery of radium has supported this hypothetical contention.

The physical estimates ignore the facts of geology, yet it must be admitted, I think, even by pure physicists themselves, that the bases of such estimates are more assumptive, more open to dispute, are less clearly established and less substantial facts, and therefore more uncertain and less reliable than are the grounds on which are based geological estimates. To again quote Geikie: "The geological record furnishes a mass of evidence which no arguments drawn from other departments of Nature can explain away, and which, it seems to me, cannot be satisfactorily interpreted save with an allowance of time much beyond the narrow limits which recent physical speculation would concede."

BIOLOGICAL CHANGE.

Probably during nearly the whole of geological time, biological change has been going on, for in the Lower Cambrian rocks there are the remains of highly developed animals, pointing to, if not demonstrating, the previous existence during the Pre-Cambrian epoch of lower or simpler organisms, although none have hitherto been with certainty discovered in the rocks of that early period of the world's history. This inference is strongly supported by the fact that in the Pre-Cambrian rocks are limestones and masses of graphite, the limestones pointing to the Pre-Cambrian existence of animal life and indirectly to that of plant life, while the graphite points directly to a Pre-Cambrian terrestrial flora. But leaving out of consideration this Pre-Cambrian epoch, the rocks of which have not yet yielded decided fossils, and taking only the time from the commencement of the Cambrian period, in the lower rocks of which are well-preserved remains of highly developed animals,

as the *Olenellus* and *Paradoxides* of the Menevian Beds and Primordial Zone of Wales and Bohemia, we have undoubtedly a vast frame for the picture of organic form and organic change.

When we look at the bottom of this picture and then at the top we are at once struck by the enormous character of the change revealed. Although there were highly developed trilobites in the Cambrian seas with all the Classes of Mollusca abundantly represented in the Ordovician or Lower Silurian period, yet no vertebrates appear to have existed in any part of those most lengthy epochs.

The backbone, the basis of the skeleton of the animals which to so large an extent people the earth and its waters now, was then non-existent, its advent being in a long subsequent Upper Silurian period. This remarkable morphological feature, the backbone, with its most important physiological attributes, is undoubtedly the most conspicuous differentiating characteristic of the post-Ordovician fauna. Its appearance gave to the world the fishes of the seas, then the amphibians of the shallow waters, and afterwards the great dinosaurs, the pterosaurs and other Reptilia, to be followed by the marsupials and monotremes of the land and the feathered birds of the air, with, long subsequently, the larger Mammalia unlike to those we now see, to be succeeded by the larger Mammalia in forms akin to those we know as living creatures, and lastly, the speaking and reasoning genus *Homo*.

It is this vast development of the Vertebrata in both greater and less variation, in those great differences that constitute Class distinctions as well as in the smaller differences of genera and species, together with the great increase of individuals, that alters entirely the upper part of the great picture of life on the globe from the Cambrian times to the present. The appearance of the backbone marked, consequently, a most momentous period in the life-history of our planet, which seemed, as it were, to be a fresh starting-point for organic development. The concentration of the nerve-matter of the animal in one cephalic ganglion, the brain, accompanied by an incipient and then by a developed vertebral column and canal, must be regarded as the greatest biological change that the fauna of the globe has undergone, inasmuch as it was the necessary step on the road to all subsequent developments of animal life.

But while this great development of vertebrate animals was in progress, changes by no means small were taking place in the Invertebrata also. An entire Order of Actinozoa, the Rugosa, disappeared, while three others advanced. Two Orders of

Echinodermata, Cystoidea and Blastoidea ceased to exist and Echinoidea greatly increased. In the highest Class of the Mollusca, the Cephalopoda, many genera that are conspicuous in the Palæozoic rocks, as *Cyrtoceras*, *Gomphoceras*, etc., although tetrabranchs, are not to be found in Secondary rocks, while Ammonites, and the dibranchiate Belemnites, of which there is no trace in the older rocks, are most conspicuous, both by their abundance and specific development, in Secondary formations, and again are absent in more recent deposits and at the present day.

The dying out of species and genera of Gasteropoda, Lamellibranchiata and Brachiopoda, and their replacement by others between the Lower Silurian period and the Quaternary, are too numerous to be here enumerated.

And if the great picture of the biological aspects presented by this planet during geological time is strikingly vivified in its upper part by the crowds of Vertebrata, both terrestrial and marine, that are absent from the stiller world of early Palæozoic times, so is it abundantly enriched by the higher forms of plants that clothe the plains, the hilly uplands and the mountain slopes. In the Carboniferous period of the Palæozoic epoch, it is true, an abundant flora covered low-lying plains, but all the plants were cryptogams or gymnosperms. Magnificent ferns, equisetums and lycopods, grew thickly and rapidly where humid and warm conditions prevailed, but there were no trees such as those that form the forests of the temperate zone of to-day, or offer food to man on their fruit-laden branches, nor were there such flower-bearing shrubs as those that now beautify both cultivated and uncultivated lands. These, the higher forms of the Vegetable Kingdom, were reserved to make their appearance in Cretaceous times, and to develop in Tertiary times until in the Miocene period they formed umbrageous woods and flowery glades that have left for our inspection, admiration and instruction, beautifully preserved leaves in great abundance, from which we see that many of our familiar friends of the woodlands and the hedgerows were flourishing long before the advent of man.

Thus both the Animal and the Vegetable worlds were enormously changed from Palæozoic to Tertiary times rather by the introduction of new and higher types than by the extinction of species or genera. It is not too much to say that if all the Palæozoic species we know had continued in existence to the present time, the difference of aspect of the whole fauna and the whole flora of to-day would have been slight. The

fauna, however, of the Secondary epoch with its huge armed dinosaurs and its flying pterosaurs was markedly different from that of the Tertiary epoch, and therefore a great change was produced by the extinction of those reptilian monsters.

The result of all biological change has, however, been to give to the globe a succession of higher and higher forms with greater complexity of structure and higher physiological power and capabilities.

PERSISTENCY OF TYPES.

When we look a little closer at the wondrous picture and examine its details both in its lower and its upper portions, we are struck by the marvellous persistency of certain forms and structures, and the persistency, too, of the functional power and purpose of similar organs. We see forms close to the bottom of the picture and we see similar forms at the top, even the very top. So like do they appear that it requires close scrutiny by trained and expert observers to detect any difference. And when it is borne in mind that of the organisms existing in the far-back Cambrian period only a few can have come to our notice, we must conclude that very many of the lower organisms of the present day are generically related to organisms of the Cambrian period. This compels a recognition of the unity of the whole organic world which must be regarded as one great biological chain without a break and with every link connected with another throughout geological time.

Although the trilobites which were so abundant in older Palæozoic times became extinct before the Secondary epoch, yet the *Limulus* or King Crab of the present day, especially in the young state, strikingly reproduces their main features, and the sessile and compound eyes of the common crayfish, crab, and lobster, are almost identical with those of the *Calymene* and *Phacops* of Silurian times, in some of which trilobites very many facets in each eye have been counted. The four-eyed *Limulus* first appears in Jurassic, but the allied *Neolimulus* is in Upper Silurian strata, and the eurypterids of these Palæozoic rocks are scorpion-like also, and are now regarded as Scorpionidæ and Arachnida, although aquatic, the present scorpions and spiders differing in being air-breathers, even as land snails differ from aquatic gasteropods. There is, moreover, a true scorpion in Upper Silurian rocks, the *Palæophonus Hunteri*, while from Carboniferous strata no less than seventy-five species of Arachnids have been obtained.

The graptolites are also confined to Palæozoic rocks, but they were structurally similar to the Sertularians or sea-pens of the present day. Their habitat was similar, the functions of their organs were similar, their life was similar.

And so it may be said of the still older Oldhamia of the lowermost Cambrians that has not been found in any less ancient rocks, for it was structurally similar to some Hydrazoa of to-day. In Cambrian rocks, too, are fossil lamellibranchs and gasteropods of families that flourish in our own seas, as the Arcidæ, the Nuculidæ, and the Patellidæ, while Silurian genera of these Classes allied to living genera are numerous. These were in all respects similar to living species in all essentials of structure and physiological function. Again, the small Class Pteropoda that gives the little *Clio borealis* as food to the great Whale of northern seas, gave the *Conularia* to Silurian seas, and specimens of these have been so wonderfully preserved that their fine striations, exactly like the fine striations of the glassy shells of the living *Clio*, are most distinctly seen.

In Cephalopoda, with one exception, Palæozoic generic forms were markedly different, it is true, from later and recent forms. The straight, the swollen, and the slightly curved forms of Tetrabranchiata, so abundant in Palæozoic rocks, are almost absent from Secondary* and quite absent from Tertiary formations, and the shell-less Dibranchiata that gave the multitudes of belemnites to the Jurassic and Cretaceous rocks, were absent from Palæozoic seas. Yet the essentials of the cephalopod of to-day were present in the Palæozoic cephalopods, and the chambers, and septæ, and the siphuncle of the living Nautilus, were matched by the chambers and septæ, and the siphuncle of the Lower Silurian Orthoceras, which was also four-gilled and so in the same Order, Tetrabranchiata. The exception is the Nautilus itself, that not only has remained true to its Class, its Order, and its Family, but also to its genus from Palæozoic times to the present. Through all the varying marine conditions, the varying character of deposits, and the varying temperatures during the long æons between the Palæozoic epoch and to-day, the *Nautilus* has lived, and it is now flourishing in great abundance in the Indian and Pacific Oceans as *Nautilus pompilius*, the well-known "pearly nautilus."

The corals have lost an Order, but all the Palæozoic coral animals had the same physiological powers based on the same organs, with the same functions, as the corals of our present

* The genus *Orthoceras* occurs in the Alpine Trias.

seas. It could obtain and secrete in a solid form, the carbonate of lime in solution in the sea-water, and with that secreted solid calcareous matter build a surrounding habitation exactly as does the coral animal of to-day. The Echinodermata has lost two Orders since Palæozoic times, but each of the existing three Orders, Asteroidea, Echinoidea and Crinoidea, were represented in the seas of that epoch, and the little *Palæaster* of the Silurian seas was quite like a little star-fish of our southern shores.

The early fishes had a peculiar structure, but it was not a structure peculiar to Palæozoic times, for there is the same structure to be seen in many living fishes. This was the extension of the backbone to the end of one of the lobes of the tail, the other lobe being merely a fin lobe. And with this unsymmetrical tail the earliest fishes had an exterior coating of bony plates instead of scales. But in the sturgeon this type of fish still lives, and not in tropical waters or under exceptionally warm conditions, since sturgeons are often caught off British coasts and, as is well known, abound in the Russian Caspian and Volga. The sharks are also representative of the heterocercle tailed fishes, as they are called, but the majority of recent fishes have equal lobed or homocercle tails. Even the peculiar *Dipterus* of Devonian age has its living representative in the both lung and gill-possessing *Ceratodus* of Australia.

Insects quite like those now living abounded in Palæozoic times, for cockroaches, crickets, beetles, dragon-flies, etc., were plentiful, and no less than 239 species of Orthoptera have been taken from Carboniferous strata. There are besides, in the Jurassic rocks, remains of earwigs, grasshoppers, white-ants, may-flies, and that genus of Diptera we know so well, the fly.

But perhaps the most striking example of persistency of form and structure and the continuance of the same physiological power implying the same function of the same organs, is afforded by the little *Lingula*, a genus of the Class Brachiopoda. The fossil, *Lingulella Davisii* is in sufficient numbers in one of the divisions of the Cambrian rocks to give it the name Lingula Flags, and the *Lingula* is now living in abundance in the China seas. These two species are essentially the same animal. Their general form and size are similar, the character of the horny shell, in composition and structure, of both, was similar, and thus we see that the animal of Cambrian times was morphologically and physiologically allied to the *Lingula* of our own day. As might be expected, the *Lingula* is found fossil in many formations between the Lingula Flags

and the latest deposits, and all the species show wonderful similarity.

The space at my disposal will not allow of other illustrations of the great fact of persistency of animal types, the numerous examples of which are well known to students of palæontology, but the facts now stated are sufficient to show that animal life has existed with similar forms and similar physiological powers from the far-back Cambrian period to our own times.

In the plant world, too, the persistence of types is conspicuous. The oldest land-plants we know are ferns very like recent ferns, and the *Lepidodendron*, *Sigillaria* and *Calamites* of the Coal Measures are lycopods and equisetums now abundantly represented.

This persistence of form, of structure, and of similar functional capabilities of organs, clearly indicates generally similar inorganic conditions to the present in Palæozoic times. It tells of conditions of sea-water and atmosphere, of temperature and light, at least not greatly differing from those we know, and shows, I think, conclusively, that whatever marked cooling of the exterior of the globe, and whatever consequent shrinkage of the globe has taken place in the past, that cooling and that shrinkage took place before the Cambrian, and I believe before the Pre-Cambrian, sedimentary rocks were formed by accumulation of detrital matter. The evidence afforded by the Cambrian rocks and the evidence afforded by the Cambrian fossils is indeed so cogent that we are enabled to picture to ourselves the world in Cambrian times. As I wrote some years ago :* we can see, as it were, its lands and its seas, its spreading plains and elevated uplands, with its broad and deep seas, and their shallower bays and gulfs. On the land, too, are rushing torrents, rippling streams, and larger and smoother flowing rivers, carrying eroded material to the Cambrian ocean, fringed by sandy shores and shingly beaches. And the sky above is now an unblemished azure, now flecked with cirrus and now dark with nimbus. Rain falls, winds blow, tides ebb and flow, and we can see the broad expanse of waters in their calm majesty or angry with storm and tempest, rolling mighty waves upon the Cambrian strand, and we can think of the millions of splendid sun-risings and gorgeous sunsets, and almost feel the heat of the noontide summer sun or the cold of the mid-winter night. We can even look through the clear salt-water on to the ocean bed, and see

* Presidential Address to the City of London College Science Society, 1897.

the groves of algae, with the trilobites and molluscs peopling those ancient seas, while along their coasts volcanic fires at intervals break forth, and lavas are outpoured that cover the surrounding rocks with basaltic or trachytic coatings. But save for these volcanic outbursts, the crash of thunder, and the roar of wind and wave, a silent world it was. No lowing herds or roaring beasts of prey were on the land, and no birds sang their songs either on tree-top or high upon the wing. And how desolate was the unnavigated sea, for whales and porpoises, seals and sharks, and flying fishes were not in its waters and no sea bird's mew was heard, for no stormy petrel, gull or penguin was upon its surface.

CHANGE AND ENVIRONMENT.

If the conclusion is warranted that the cosmic inorganic conditions on the globe, however locally or even regionally varied, have been generally similar during the whole period of the deposition of the sedimentary rocks, and therefore during the whole period of the life on the globe that has given all the information we possess of biological change, we must, I think, further conclude that this change has accompanied in its progress small rather than great alternations of environing conditions. It is also evident from the testimony of the rocks that while great biological changes have synchronised with very small, if any changes of environment, slight biological changes and even morphological continuance, have accompanied considerable alterations of environing conditions.

The marine conditions of the Ludlow could have been little different from those of the Wenlock period, during both of which argillaceous and calcareous matter was largely deposited, giving the Ludlow and Wenlock shales and limestones, and yet the fauna of the one gives us Vertebrata which is absent in the other; corals and echinoderms greatly decreased; other Invertebrata greatly alter; and large arachnid Crustaceans take the place of many species of trilobites. The British Permian deposits of sandstones and marls show similar marine conditions to those indicated by the Triassic sandstones and marls. Red sandstones with conglomerates and stiff red marls make up 3,000 feet of the Permians of this country, and red and variegated sandstones with conglomerates and stiff red marls make up 3,000 feet of the Trias of England. Yet our Permian mollusca is wanting in our Triassic rocks, while the homocercle fishes and the dinosaurs of the Trias are altogether wanting in the Permian. Indeed the Triassic rocks are much more allied

lithologically to the Permian than to the Jurassic rocks, but the Triassic fauna is much more like the Jurassic fauna above than that of the Permian below.

The Rhætic limestones and shales of England are very similar to the Lower Lias limestones and shales, indicating similar marine conditions. Yet our Rhætic beds are without ammonites and belemnites, without many genera of Brachiopoda, Lamellibranchiata and Gasteropoda, and without *Ichthyosaurus* and *Plesiosaurus*, all of which genera are most conspicuous in our Lower Lias. The Bathonian and the Portlandian marine conditions, both giving thick-bedded oolitic limestones, must have been very similar, but while Brachiopoda are most abundant in the Bath limestones, they are entirely wanting in the Portland limestones, and although ammonites are present, belemnites are absent.

On the other hand, very considerable alterations of environment have been accompanied by very small biological change. Trilobites are in the shales as well as in the limestones of the Silurian rocks, although these greatly differing deposits indicate at one time abundant argillaceous matter in shallow seawater and at another a clear and deeper sea.

So also do ammonites and belemnites abound both in the Jurassic limestones and the Jurassic clays, while in Cretaceous rocks they are both in the calcareous Chalk and the argillaceous Gault. The range in time of the Orders and genera of Cephalopoda, indeed, present several remarkable features. Tetrabranch cephalopods have lived through all conditions from Lower Silurian times to the present, while dibranchiate cephalopods appear in Secondary times. Two conspicuous tetrabranchs, the *Nautilus* and the *Ammonite*, with the dibranchiate *Belemnite*, flourished throughout the Secondary period under the same marine conditions, but at its close the tetrabranch *Ammonite* and the dibranchiate *Belemnite* became extinct together, while the *Nautilus* which lived in Palæozoic seas continued to live and is still abundant. Again the tetrabranchiate *Orthoceras* died out in Triassic times while then it was that the Ammonoidea of the same Order had its greatest development, 1,000 species having been described.

And so it appears to have been with terrestrial organisms also, if we may judge from the comparatively few land fossils that have been preserved. Nothing could well be more different in land surface conditions than the warm and humid and low-lying conditions of the Coal Measure areas, and the cool and breezy and elevated conditions of our mountain sides.

Yet the *Pecopteris* of the Coal Measures is very similar to the bracken of the upland slopes of England and Wales, from which we may conclude that the ferns, at least, of the Carboniferous flora flourished under very varied conditions of moisture and temperature all through the Secondary and Tertiary epochs. These remarkable and instructive facts doubtless present great difficulties, but they cannot be ignored and must be taken into account in any adequate consideration of this subject.

EXTINCTIONS.

The term "exterminations" applied to the extinctions or dying out of species or genera during geological time seems to imply a sudden termination of the existence of the whole of the individuals; but such sudden extinctions, as was well said by Mr. Huddleston, are more apparent than real.* An apparent extinction may only have been occasioned by the migration of a species to another area the rocks of which have not been examined or possibly have been destroyed. Extended and more careful research has over and over again given a greater stratigraphical range to species and genera than had before been regarded as established. Species thought to be limited to a particular formation have been subsequently found in newer and, in some cases, much newer rocks. I have myself found species that were thought to be confined to certain formations in other beds sometimes much higher in the stratigraphical scale. This result of extended examination of fossiliferous rocks was well exemplified by the extension of the known stratigraphical range of the trilobite, *Arethusina Konincki*, which up to a certain time had not been found higher than in a zone of the Upper Silurians of Bohemia, although in that and lower zones it was most abundant, and accordingly the species was considered to be quite characteristic of these rocks. But at length the *A. Konincki* was discovered in the much newer Upper Devonian rocks of Westphalia.

Such facts as these render it certain that future research will give similar results, and this forbids the conclusion that a species or a genus has become extinct at the time of the formation of the newest bed in which it has hitherto been found. Even those species of Ammonites which are usually regarded as marking certain zones in the Jurassic rocks may not have had

* *Journal of the Victoria Institute*, vol. xxxvii, p. 184.

the relatively short existence that the small thickness of the strata they characterise may seem to indicate. They may have migrated to, and lived on in, other areas at a greater or less distance from that we have been able to examine. Although the theory or principle of homotaxis as propounded by Huxley cannot be allowed to apply to the extent its author anticipated, it yet has undoubtedly a considerable kernel of truth, for migration may entirely remove a species from a locality and give it to another where it will be contemporaneous with later deposits.

The difference in the fossil fauna of the same formation in two localities not very far apart is remarkable. If we take the Inferior Oolite of Gloucestershire and Dorsetshire, for example, we find an abundance of Brachiopoda in the former and an abundance of Cephalopoda in the latter. The *Terebratula subglobata* is most numerous near Stroud and almost absent in Dorsetshire, while almost only at Crewkerne in Somersetshire is *Ceromya Bajeceana* to be found. From one small locality in Dorsetshire a large number of species of Ammonites have been obtained, while in other localities the Inferior Oolite gives only a few of these species. Near Enslow Bridge, in Oxfordshire, the Great Oolite contains a bed in which *Terebratula marillata* is most abundant, but any such a congeries of this species is not to be found elsewhere. Yet in none of these cases is a species altogether confined to one locality, and as more and more places are examined the evidence of wider extension is obtained. In two Austrian areas of contemporaneous Triassic rocks it has been recently ascertained that the fossils of one are very different from the fossils of the other, and that some remarkable zones with Palæozoic species are only to be found in one of these areas.

The very small area in which a number of individuals of a species may be localised, as it were, in a colony, is strikingly shown by the occurrence of that fine gasteropod the *Purpurioidea Morrisia*. Thirty or forty years ago this fossil was abundant in the Great Oolite of Minchinhampton, while now it is not to be found there. The same bed is exposed but the continued working of the quarry has removed a few horizontal yards of rock which has obliterated the little colony, but only a colony, since it is not to be concluded that no other individual of this species lived in other areas on this geological horizon. At the present time there are thousands of cockles on our coasts in certain places and not a single cockle in others, even where the conditions are similar; and so it is with mussels, periwinkles, etc.

If this is so, and has been so, horizontally, time will make it so vertically also, and this should give no cause before asserting that a species has become extinct because it has not been found so far in a bed above its so-called zone. It is indeed not too much to say, that until all the fossiliferous rocks in all parts of the world have been well examined, we ought not to positively assert the restriction of a species to a particular zone or even to a particular formation.

Doubtless, extinctions in geological time have been in the aggregate vast, but the time has been vast also. Some of the extinctions, it is true, have embraced not only species but genera, in a few cases families, and in a very few cases, only five in all, Orders, but these have, in most cases, if not in all, been effected during long-extended periods of time.

CAUSES OF BIOLOGICAL CHANGE.

From the facts revealed by geology and palæontology, a few of which have here been very briefly presented, it is evident, I think, that it will be most difficult to formulate a specific cause, or specific causes, for specific biological changes, including the appearance of new and the extinction of old forms.

The hypothesis, which has been advanced, of natural causes operating to effect a certain amount of change, or rather modification, and these being supplemented by direct supernatural action to complete the change and give a new species or a new genus,* seems to leave out of sight the fact that some newer species and newer genera were decidedly inferior to those preceding them, for we can scarcely call in supernatural power to reverse advance, to retard progress, and to undo good. The more complex graptolites are from Lower Silurian formations and the simpler forms from the Upper Silurian and Devonian rocks. The largest and most highly developed genus of trilobites, the *Paradoxides*, is in Lower Cambrian rocks, while the two late Carboniferous genera, the *Phillipsia* and the *Griffithides*, are both simple and small. The earliest Lamelli-branchs were dimyarian and the much later *Ostrea*, *Gryphea*, and others, were monomyarian. The tetrabranchiate cephalopods flourished in Palæozoic seas long before the appearance of the dibranchiate genera. The *Ammonite* was not in advance of the

* Dr. C. B. Warring, *Journal of the Victoria Institute*, vol. xxxvii, p. 172.

Nautilus, which both preceded and survived it. And if Professor Hyat is right in saying that the efforts of the orthoceratite "to become completely a littoral crawler developed the Ammonoidea," it was a step that led to nothing further, since there is no genus that we can regard as being developed from the *Ammonite*, for the *Nautilus* is the only living tetrabranchiate.

The extinct Palæozoic brachiopods cannot either be said to be lower steps towards higher genera in Secondary times since *Terebratula*, *Rhynchonella*, *Discina* and *Lingula*, all lived in Palæozoic times contemporaneously with *Productus*, *Spirifer*, *Chonetes*, *Pentamerus*, etc., and *Lingula* earlier than any. The two Palæozoic Orders of Echinodermata, Cystoidea and Blastoidea passed away without being followed by any more highly developed successors, for the only three existing Orders of that Class, the Asteroidea, the Echinoidea, and the Crinoidea, were in existence as early as the two Orders that have become extinct, so that the several Orders of the Echinodermata were geologically contemporaneous in their appearance. Though the Pterodactyles had affinities with both reptiles and birds, they have passed away without leaving any developed successors, and the only creatures having affinities with them in their chief peculiarity are the mammalian bats. And writing of fossil plants, the eminent botanist, Mr. W. Carruthers, says: "Ferns, equisetums, and lycopods, appear as far back as the Old Red Sandstone, not in simple or more generalised but in more complex structures than their living representatives."* It may indeed be said generally that in the case of very many species it is quite impossible to find any cause for saying that a newer is higher than an older form, or to see any reason in their structure for the order in time which they have made their appearance.

But apart from these special instances, there is the great general fact of the introduction of new genera and species of lower Classes all through the Secondary and Tertiary epochs after the higher Classes of Vertebrata had come into existence. That supernatural interference with the Laws of Nature should be employed to produce a *Cardium*, a *Trophon*, or a *Littorina*, in addition to the vast multitude of similar genera, occupying a similar position and playing a similar part in the cosmos, and when there were already much higher animals in existence, is incredible.

* *Geological Magazine*, 1876, p. 362.

Although the facts of palæontology are so multifarious, so varied, and in some cases so apparently inconsistent with each other, and even seemingly contradictory, that we cannot assign specific causes for them, the only conclusion that observation of Nature, and Science, seem to warrant is that biological changes with introductions of new and extinctions of old species are not due to any suspension or supersession of the Reign of Law, and that, therefore, however difficult it may be to explain the cause of specific changes, they are all due to natural causes.

In some cases, indeed, it does not seem difficult to suggest a cause of extinction, as in the case of the great dinosaurs of the Secondary epoch. These great creatures required much food, which sometimes might not be easily procurable, and their heavy and unwieldy bodies and very small brains would not assist them in their search for sustenance. So also the great mammals of the Pliocene and Pleistocene periods would be severely handicapped by their great food and water requirements when seasons were unfavourable, or changes of level or temperature altered the quantity or character for the worse of the plants on which they fed. Changes in physical geography, as Lyell long since pointed out, are capable of producing great effects on the flora and the fauna of a region. By the slight subsidence of an extensive coastal plain it may be flooded by sea-water, and immense forests of trees and jungle plants destroyed, by which great herds of animals may lose the food on which alone they can thrive. Great swarms of locusts, again, have the power of devastating a wide extent of country, and so may deprive of food multitudes of small animals by which large carnivora may lose their prey and so die of starvation.

In his great work, *The Principles of Geology*, Lyell gives an interesting summary of the far-reaching effect of such an apparently small and unimportant thing as the transportation of a few polar bears by drift-ice to an island in northern seas before the time of man, such as Iceland has seen since its colonisation by Norwegians, who have been able to prevent the mischief by exterminating the invaders. In the absence of armed men and stronger carnivora, "the deer, foxes, seals, and even birds," on which polar bears sometimes prey, "would be soon thinned down. But this would be a part only, and probably an insignificant portion, of the aggregate amount of change brought about by the new invader. The plants on which the deer fed, being less consumed in consequence of the lessened numbers of that herbivorous species, would soon

supply more food to several insects, and probably to some terrestrial testacea, so that the latter would gain ground. The increase of these would furnish other insects and birds with food, so that the numbers of these last would be augmented. The diminution of the seals would afford a respite to some fish which they had persecuted; and these fish, in their turn, would then multiply and press upon their peculiar prey. Many water-fowls, the eggs and young of which are devoured by foxes, would increase when the foxes were thinned down by the bears; and the fish on which the water-fowls subsisted would then, in their turn, be less numerous. Thus the numerical proportions of a great number of the inhabitants, both of the land and sea, might be permanently altered by the settling of one new species in the region; and the changes caused indirectly would ramify through all classes of the living creation, and be almost endless."

When it is found that extensive areas have been elevated 14,000 feet since Pliocene times, for in the Himalayas deposits of that age are now 14,000 feet above sea level, we must be impressed with the magnitude and vast number of geographical alterations that have taken place throughout geological time, and also with the almost infinite number of consequent possibilities that would affect, in one way or another, animal and vegetable life on the globe, and so be productive of biological change. The exact conditions of each period of geological time, and of each sea, and bay, and estuary, and lake, existing in each of these periods, or each of the many and constantly varying land conditions of elevation, exposure, temperature, and humidity, we cannot hope to know, and so we cannot hope to be able to give the specific causes of specific changes, but the general cause of biological change does not appear so inexplicable.

"The fact of heredity is recognised," Dr. Saleeby says, "by every man who would show surprise on hearing that an acorn had developed into a human being or a mushroom," and "the man in the street need not leave the street in order to find conclusive evidence of the fact of variation."* But it is also necessary to remember that "the link which unites all organisms is not always the common bond of heritage, but the uniformity of organic laws acting under uniform conditions."†

* *Fortnightly Review*, 1905, p. 604.

† G. H. Lewes, *Fortnightly Review*, 1868, p. 373.

Heredity, variation and environment, each acting in modification of the other two, and the vast duration of geological time, seem to furnish this general cause, and render less inexplicable the results of modern palæontological investigation, and we are therefore not called upon by these results to doubt that the Reign of Law is as supreme in the Organic as in the Inorganic world.

DISCUSSION.

Rev. G. F. WHIDBORNE, F.G.S.—I am not concerned to defend Dr. Warring's views, but I agree with our Secretary's editorial note that his use of the word exterminations has been misunderstood; and in my remarks on his paper I used it in the sense which our Secretary attached to it. Certainly the old scientific idea of a number of successive creations and obliterations is disproved alike by Genesis and modern geology, which equally show a single progressive changing creation.

The true view of the existence of exterminations seems only emphasized by Professor Lobley's interesting paper, and the question remains whether in sweeping away the false idea that geologic periods indicated independent creations, we have not too much minimized the fact that they present us, as it were, with a series of cinematograph views, directly related, but each individualized. Is there a meaning not yet fully appreciated in the fact that geology displays to us a series of correlated tableaux and not a continuous diorama?

In his paper the Professor emphasizes not only exterminations (or as he better calls them, extinctions), but origins. Thus he points to the assumed origin of vertebrates in Upper Silurian times. It is easy to call Upper Silurian long subsequent to Cambrian, but relatively to the whole catena it is remarkably early for the appearance of so high and so specialised a class as vertebrata; especially as it cannot be said that they did not before exist, but only that they are not known to have before existed. Further, the variety of

the primordial fauna must indicate on any theory of evolution the pre-existence of earlier (probably vastly earlier) unknown faunas. Palæontology begins with Vol. X, not Vol. I, of biological history.

Again, it cannot be too clearly realised that the early history of land surfaces is almost *nil*. The coal, I suppose, was rather a swamp than an actual land surface. And before the coal and the Devonian what is there? But if there were sea beds, there must almost certainly have been land surfaces; and in the Silurian, Ordovician, Cambrian and Pre-Cambrian land surfaces, it may have been, and probably was, that there existed a vast library of Palæobotany. Plants being always sedentary are far more dependent on local circumstances than animals. Here there are vast unknown terms. In natural problems, as in others, unknown terms cannot safely be neglected; often they have to be retained as unknown terms in the result.

But when we come to the latter part of the paper I find myself as much in discord with Professor Lobleby as with Dr. Warring. I find it as difficult to imagine natural causes not in their origin supernatural as to imagine the natural and the supernatural confused in their working out. I can conceive no natural cause which is not supernatural in primal origin; I can conceive no supernatural origin which is not natural in its result. That only is supernatural which is above and before nature, and unless nature is self-originating, it must have originated from the supernatural. But in our common and inaccurate use natural and supernatural are only conventional terms, and only mean processes we understand and processes we don't understand.

The weakness of the Professor's argument seems to me to come out at the conclusion. He gives heredity, variation, and environment as furnishing the "general causes" of Biological change. Heredity, however, is a centripetal force, it offers no explanation of progress but only of the preservation of things. The other two are valid as operating causes of progress, but they are open to the leading question, "What caused them?" The Professor seems to attempt to answer this by saying "The Reign of Law is supreme." Let this be granted. Law cannot be self-constituted, for then it would be chance and not law. So we reach the final question, "What is the origin of law?" To use Henslow's term we may answer Directivity; an older synonym is Design. I can find no other origin

for the Reign of Law than the Reign of the Will of God. The fact of natural law is to me only the expression of the infinite consistency of the Almighty.

Dr. W. WOODS SMYTH.—My thanks are due to Professor Lobley for his papers both for the present and last years. I can see that he is a thorough Uniformitarian. I thought we had come to a compromise and admitted that both Uniformitarianism and Cataclysmatarianism existed. Both do exist. While changes have been going on in a placid form at some places, there have been mighty upheavals occurring at others. At Martinique at the time of the eruption of Mt. Pelée, we would have found changes going on in the same place in a very mild form indeed. Going back to former times, look at the earth when it must have resembled the moon. There was a vast volcanic globe covered with scoriæ, tufa and pumice.

The earth's crust must then have been disintegrated so that at last when rivers formed they must have brought down large deposits—in large masses of material—and that would account for some of the Pre-Cambrian sedimentary rocks.

There was a mighty change which Professor Lobley has shown us in connection with the Himalayan range, which has risen up 14,000 feet since Eocene times, so that part of that was at the bottom of the sea in the Eocene (Nummulite) period, and the same applies to the Carpathian and Alpine ranges.

Speaking of physical environment, Professor Lobley has given evidence to show its limited influence on life. He has shown the great influence of the biological environment, with which I agree. Now the influence of the biological environment goes to support the theory of selection, or the "survival of the fittest." Genesis is undoubtedly in harmony with what Professor Lobley has presented to us, the absence of any interference, or directivity. It does not occur in that wonderful chapter. The uniform flow is beautiful throughout. I mentioned before here that the Hebrew tense speaks of the incoming, the continuous, and these tenses are used forty-nine times and show the flow onward of God's creation.

Mr. WOODFORD PILKINGTON, M.Inst.C.E., expressed his concurrence with the views of the author.

¹ Professor ORCHARD.—I must thank Professor Lobley for bringing before us "Biological Changes in Geological Time" in a series of

most interesting views into which he has infused a warm glow. Anyone who has heard the description of that supposed scenery of the Cambrian age must have felt that to that solid and thorough knowledge which he possesses as a master in geology the author has added the enthusiasm not only of the investigator, but I may also say of the poet.

There are one or two slight criticisms which the paper perhaps invites :—

The author laid great stress upon the persistency of types, upon the appearance of higher forms before lower, also upon the sudden appearance of new forms. These facts are fatal to any theory of evolution whatsoever. With regard to the length of time geologically I do not know that I entirely go with the author. It is of course a matter of argument.

With regard to heredity, variation, and environment, we have to remember that heredity, as has been pointed out by the first speaker, is not the cause of the change but the cause of characteristics. Environment never changes the character, it only alters the outward appearance.

With regard to variation, that never extends beyond the limits of the species. I do not see that these three forces, whatever you like to call them, these three processes, would apply to anything further than variation within species. Possibly the author did not intend that they should.

On p. 109 the author seems to think that it is quite impossible, at least incredible, that God should have created lower forms after creating the higher. I do not see any ground for incredibility. Is it not possible that the creation was allowed by Him to subserve interests of the subsisting forms as well of higher forms. As a matter of fact, it is certain that lower and higher have gone on continually. The only explanation that at all harmonises with the real facts of science is the old theory of "special creation." Nothing else is free from most serious difficulty. Nor do I see why we should have any objection to it. It is plainly said in Genesis that the days were completed periods: the fact that the Hebrew tense would refer to the whole drama of creation, and not to the particular acts.

Professor HULL.—Mr. Chairman, I entirely associate myself with the words of Professor Orchard and others who have expressed their

admiration of the manner in which this paper has been brought before us. Of course we all know Professor Lobley is a first-class authority on palæontological matters; and whether we agree with his views as to the origin and progress of species and forms or not, we must admit that he has handled his subject in a very eloquent and interesting manner. There are, however, several points, not so much connected with the palæontology as with the physiography of the subject, which I wish to call his attention to. In the first place, I do not go with him so far as he does regarding the extent of the destruction of the various formations which he indicates in his paper.

He seems to suggest that the mountains of Wales and other mountain regions to the north of Wales and the British Isles were covered over by strata belonging to the Jurassic and Cretaceous periods. I do not think this was the case at all. This is a subject I have dealt with in a work which lies on the table and which I would ask Professor Lobley to look at and see if he does not agree with me. Unquestionably the Silurian region of Wales and the north of Scotland and the Carboniferous region forming the "backbone of England" were land surfaces at the time when the Oolites, the Cretaceous limestone (or the Chalk) were being formed in submerged areas to the south. The waters of these seas did not cover these old regions at all. They were land surfaces during that period, and therefore the destruction of these formations did not go on to the extent which the author of the paper seems to assume. These formations as they approached the old land surface gradually thinned out into thinner and thinner dimensions, and therefore were ultimately denuded round their margins on the uprising of the lands to their present position.

With regard to the uniformity of denudation in these periods, I fear I cannot agree with the author of the paper. I think the denudation of strata may have been vastly more rapid in very ancient times than it is at the present day. One reason which may be adduced is the greater proximity of the moon to the earth in early geological times. If the moon was originally thrown off from the earth it inevitably increased its distance to its present state, where it seems to be permanently at a certain distance from the earth owing to the balance between gravitation and centrifugal force. During the period of gradual widening of the distance there must

have been a difference in the effect of attraction of the moon's mass which would have affected powerfully the tides; and supposing at a certain period, say the Jurassic or the Old Red Sandstone period, the moon was only one-half the distance from the earth that it is now, the effect of the attraction of our satellite would have been probably quadrupled to what it is at the present day. What would be the effect of that on the tides? The tides would rise and fall enormously to a greater extent than they do at the present day, and the result of that rise of the tides would be to produce an amount of denudation and erosion of the rocks vastly greater than is now the case. If the waters rose, say, four times higher along the coasts at that period than they do now, so the period of oscillation would have to take place in the same period, or as nearly so as possible, and the effect of that upon the land would have been vastly greater than it is at the present day.* This view was many years ago suggested by Sir Robert Ball, and it imprinted itself upon my mind as a phenomenon that has to be taken into consideration when we speak of the uniformity of these natural agencies of denudation and erosion in past geological times as compared with that of the present day.

Professor LOBLEY.—I must express my thanks for the kind attention given to my paper, and so many points have been raised I am afraid that I should have to take up as much time as it took to read it to reply to them; but there are two or three points that have been put saliently.

With regard to Professor Hull's remarks about the amount of denudation, and the amount of destruction of the rocks, Professor Hull is a high authority, and I would pass that over. My estimates were round numbers and figures just to illustrate the point that a very large amount of the stratified and other rocks had been denuded away. I agree that some of the higher mountain regions of Scotland and Wales were above the sea during Jurassic times. I do not measure the amount of material which had been removed from either area.

The geological map shows that a very large proportion of the formations that have been there originally have been removed and

* On the supposition that the diurnal rotation of the earth was what it is now.

destroyed by denudation, leaving only a small proportion in this limited area of the British Isles. I took the British Isles because they are better known.

With regard to the uniformity ; I am not a rigid Uniformitarian, as has been suggested. I consider there has been a general uniformity in connection with the laws of nature, in the past, and that the positive evidence we have of slow deposition shows that the general inorganic conditions of the globe were similar from the Cambrian times to the present.

The argument with respect to the proximity of the moon giving a greater tide is based on the assumption that the moon was half way to the earth in Jurassic times.* That is an assumption ; there is no proof. But we have positive proof on the other hand that there has been very slow deposition, and I read an extract from Sir A. Geikie to show that in the very old rocks, the Pre-Cambrian, you have absolute evidence of extremely slow deposit entirely analogous to the deposit of the present time, and that we see ripple marks and sand marks in very old rocks, Pre-Cambrian rocks, and we must come to the conclusion that these inorganic conditions were going on very similar to the present day. That there was a great sweeping of material together in some small areas, there may have been, but the general rule is that you find evidences of deposit quite similar to the deposit that is going on at the present time.

The CHAIRMAN.—At this late time it does not become me to say very much. What strikes me is the very short time man has had to see what has been going on. We are all agreed that the paper has been both interesting, learned and picturesquely written, and I think we ought to give our best thanks to the author, Professor Lobley.

The Meeting closed with the usual vote of thanks to the Chairman.

COMMUNICATION.

Rev. Dr. IRVING.—Professor Lobley has given to the Institute a paper which will no doubt prove useful to many of the members

* This was only stated as an hypothesis, the actual distance may have been more or less.—E. H.

who are not express students of geology. To a student of geology, however, it contains little of anything beyond what he is familiar with; and it fails to rise much above the text-book way of looking at geological and palæontological facts. One looks in vain for help from it towards that higher "philosophy," which aims at the correlation of results obtained in that department, with those arrived at in other branches of research, the very *raison d'être* of the Victoria Institute. We find the usual old and stale arguments to support the demand of the mere geologist to make unlimited drafts upon the bank of time, including the fallacy of attempting to compute time-duration from relative thickness of strata (a sort of carpenter's rule method); while the argument from the fractional portions of stratified formations or systems of rocks is drawn from too limited an area as to its facts, and seems to overlook the larger factor of the permanence of ocean-basins. The persistency of lower forms and types both in the vegetable and the animal kingdom has long been a common-place of palæontology; they remain and abide, while through evolutionary differentiation the fact of advance from the lower to the higher, as to structure and function, is patent enough. No one can well question the potency of the factor of change of environment throughout; and it is well to emphasise the fact that our data for determining the actual extinction of species is very far from complete as yet.

Unfortunately, it seems to me, the mind of the author of the paper is insufficiently emancipated from the uniformitarian dogma of the Lyell School, which very few capable geologists are prepared to swear by in the present day. One would like to see the paper permeated a little more with the spirit of what Professor Lapworth has styled the "New Geology," as it has advanced to a large extent under the leadership of the master-mind of Professor Suess of Vienna, at whose feet even men like Sir A. Geikie seem to be willing to sit as disciples. The paper before the Institute seems to practically roll up the pages of the last decade or two of geological progress. It is only through Lyellian spectacles that the author's imagination can see the vision of what he portrays to us with some vividness (on page 104) as having constituted terrestrial scenery in Cambrian times; a picture far too much overdrawn for Silurian or even later palæozoic time, as we may see if we recollect (as some of the master-minds of geology have taught) that there is no

evidence of any extensive elevation of land above the hydrosphere of the globe before (at the earliest) the Devonian age. One might do worse than recommend to Professor Lobley's notice the views propounded (as inductions from a far wider range of facts) by such masters of the science as Professor Hermann Credner and Professor Zittel, to whose works references have been given in a foot-note to page 81 of the paper read by the present writer on January 15th, 1906.

To come to closer quarters, I raise an objection against Mr. Lobley's animadversions upon some remarks I made at a meeting of the Institute last year; because they imply misunderstanding on his part, and misconstruction of what I said on that occasion. He has no right whatever to drag in the hypothesis of the "supernatural," which is a rather foolish term, though a favourite one with minds of a certain order. The deterioration of which he speaks in detailed instances is a fact which he assumes in rather too easy a fashion; and he seems to supply no standard by which such deterioration can be gauged.

In a sense, no doubt, it is true in some cases—as in the case of the Permian fauna as compared with the Carboniferous, as I pointed out in various papers years ago. The advance of the whole fauna and flora of the globe is what we have to consider, and not to attempt to construct theory upon these or those details. That advance towards higher types, and towards a greater multiplicity of them, has been along many lines, some of which are seen (or at least appear) in the light of such an imperfect geologic record as we possess, to reach their vanishing points; but of these we can only fairly judge by considering their place in the totality of progressive advance.

Deterioration of a given set of organisms under more unfit conditions of environment is but the correlative of advance under favourable conditions; it eliminates the old notion of sudden (*quâ* miraculous) extinctions, but that is simply "slaying the slain." We may fairly contend that such cases teach merely the subordination of the interests of the individual to the economy of the whole. That that economy is all under "the reign of Law" no one questions; but the mere geologist claims too much when he assumes that the great and deep questions, as to *what really constitutes "law,"* can be settled by what appear on his single plane of mental vision.

Far wider was the outlook of one who could write of Nature :—

“From scarped cliff and quarried stone
She cries, ‘A thousand types are gone ;
I care for nothing, all shall go.’”*

But that leads us into regions of thought which require other faculties of perception than those which geology can furnish to the human mind, as I have attempted to some extent to show in my recent paper.

REPLY BY PROFESSOR LOBLEY.

Dr. Irving is dissatisfied that my paper is not one quite different from what it was intended to be—a plain and concise exposition of geological facts and deductions, required by a previous paper for the consideration of an Institute not mainly, or even largely, geological, and so necessarily containing much that is well known to geologists in addition to many facts that, so far as I am aware, have not been before stated. One would have thought that an attempt to do this would have been approved by a lover of geology, but instead of approval it is met by Dr. Irving with the reverse.

The “regions of thought” and “higher philosophy,” to which allusion is made, are outside the scope of my paper, and I am unable to understand how any “New Geology” can invalidate ascertained facts and sound deductions, which must remain good for all time.

* Tennyson's *In Memoriam*.

ORDINARY GENERAL MEETING.*

COLONEL MACKINLAY IN THE CHAIR.

The Minutes of the last Meeting were read and confirmed, and the Rev. John Urquhart was elected a Member.

The following paper was read by the Author :—

THE BIBLE PEDIGREE OF THE NATIONS OF THE WORLD, as attested and expanded by ancient Records and Traditions, and by early and long-lasting national Names.
By MARTIN L. ROUSE, Esq., B.L.

SECTION I. JAPHET AND GOMER.

A PRIZE was recently awarded by the Victoria Institute for the best essay that set forth the Bearing of recent Oriental Discovery upon Old Testament History. The subject of the following pages embraces that field of evidence within the wider one of pagan records and traditions at large, while it has the narrower aim of confirming only one section of the sacred history contained in the Bible. But it equally accords with the general objects of our Society; and it is meant only to be introductory to a much more comprehensive treatise, which, if my life is spared, I shall give to my leaders and fellow-workers here. Confiding, then, in your sympathy, I take the first step in tabulating my own and other men's researches upon an early and most important section of Bible History, to test its trustworthiness both by the unwitting agreement of the sculptors and scribes of Egypt and Shinar, and by that of the

* Monday, February 19th, 1906.

geographers, historians, and poets of Greece and Rome—a section, which until recent years, was little handled by scholars, and yet which should have a deep interest for the thoughtful in every nation; for it is the section which claims to prove that all nations are akin and, with the help of other Biblical allusions, to show what are the channels of their kinship.

It is many years since I first made the Tenth Chapter of Genesis a special study, endeavouring to find out what nations, ancient and modern, bore the names there ascribed to the immediate descendants of Noah's sons and, if possible, to assign an ancestor among these for every nation existing now. Having, to start with, only the clues given by Adam Clarke in his Bible commentary (for I had not then thought even of Josephus), I eagerly scanned Kiepert's *Ancient Atlas*, Smith's *Smaller Classical Dictionary*, and the *English Cyclopædia*, until I had modified and greatly expanded Clarke's identifications with a great network of evidence. The result was fourfold: firstly, I found that most of the nations identified were already of large size long before the Christian era (as we should expect them to have been, if they became distinct in language and government as early as that striking chapter tells us, namely, between the third and fourth generation after the Flood)*; secondly, that those which were stated to be descended from a particular son of Noah had, as a rule, a closer affinity in language with one another than with those whose descent was traced from a different son; thirdly, that they surrounded the plains of Shinar (whence the Bible states them to have become diffused), but surrounded no other region in a complete ring, leaving no gap, and in two rings beyond this, which would have been complete but for intervening seas; and lastly, that the great majority of existing peoples were embraced in the enumeration, so that further knowledge was likely to show that the rest were embraced also.

The reading since then of what old Josephus said upon the subject† of Professor Sayce's treatises‡ and of Dr. Pinches' remarks in his latest work§ besides a dip into De Morgan's account of his exploration in Elam, have much augmented my knowledge and have made those results more apparent, by

* Compare chap. x, 25, with ver. 5 and chap. xi, 10–16.

† In his *Antiquities*, Bk. I, chap. vi.

‡ In his *Fresh Light from the Ancient Monuments and the Higher Critics and the Monuments*.

§ *The Old Testament in the Light of Historical Records, etc.*

bringing to bear upon them more ancient records than those of Greece and Rome from lands nearer to what the Bible declares and observation proves to be the centre of the great dispersion. But such results if established confirm the absolute accuracy of the table; while a complete and accurate table of descents, considering that every head of a family in the second generation at least spoke a different language, could not have been *worked out* by original *investigation* as late as even a hundred years after the dispersion. It must, therefore, have either been *written down* by a patriarch within a generation or so after the event or else have been told to a later writer by the Great Disposer of events Himself.

What object could He have had, some might, however, ask, in either preserving or revealing a perfectly accurate pedigree of the nations? Surely that it might be evident to all who afterwards read His "oracles" and sacred history that He has indeed "made of one blood all nations of men," that the ancestors of all once had an equal knowledge of Him and access to Him, and that the history of His previous dealings with and promises to the patriarchs from Adam down to the sons of Noah belongs equally to all men. Among those promises there stands pre-eminent that of the hard-won victory of redemption, when "the woman's seed" should "bruise the serpent's head."*

Let us then unroll this ancient pedigree, examine this title deed, which, if it is indeed genuine, enables all men to claim descent from ancestors with whom for themselves and their heirs in all ages God made His first great covenants of grace.

At the very outset of the genealogy, a coincidence meets us in the name of Noah's own son Japheth.† It will be observed that the Bible gives Javan as the name of the third son of Japheth, and, after enumerating the sons of Javan, it says, "By these were the isles (or coastlands)‡ of the nations divided." Now this description possibly might be intended to apply to all the nations descended from Japheth, whose prime founders have just been individually mentioned, but it certainly does apply to the nations or tribes that sprang from the persons named in the last foregoing verse—the sons of Javan: for the Grecian people have from remote prehistoric times inhabited not only the

* Gen. iii, 15.

† This name is written as Jāphēth in its first two occurrences and thrice besides (including Gen. x, 1); as Jēphēth also five times (including Gen. x, 2), and as Jāphēt once (in Gen. ix, 27).

‡ Gen. x, 5, R.V. margin.

eastern and western *coasts* of the Ægean Sea, but the innumerable *islands* which lie between them; while every time that Greece is noticed in the Old Testament it is called Javan.*

But this Bible statement of the parentage of Javan, or the Greek nation, strangely tallies with the Greeks' own account of their origin. Ouranos and Gaia (Heaven and Earth), said they, had six sons and six daughters; and of this family only one—Īāpētos by name—had a human progeny†: marrying Klymēnē‡, a daughter of Okeanos (the Ocean), he had by her Promētheūs and three other sons; Prometheus begot Deukalion (who was the Grecian Noah, saved with his wife alone through a world-wide flood); and Deukalion begot Hellēn, the reputed father of the Hellēnes or Greeks. Nay more—if we proceed a step further, we find that Hellēn himself had a grandson named Iōn; and in Homer's poetry the rank and file of the Greeks are commonly called 'Iaoves, or Jaōnēs§ (between the *α* and the short *ο* of which, as in like cases, philologers read the lost digamma, making it 'IaFoves, or Javones); while Æschylus in his play of "The Persians" twice makes Xerxes' mother call the European Greeks by this name.||

The agreement in detail of the names of Javan's sons given in our chapters with those of the Grecian tribes scattered around the Ægean Sea and the Levant I hope to show in my next paper; but for the present this much is proved: the Greeks by their traditions, equally with the Bible record, claimed Japheth or Japet¶ as their first human ancestor: they

* The two clearest references under that name to its history being found in Dan. xi, 2, where Xerxes' invasion of it is foretold, and in Dan. viii, 5-8, 20-22, where a prophecy is made of the conquest of the Persian empire by a king of Greece, and the subsequent fourfold division of his own dominions.

† As for the other children of Ouranos and Gaia, Oceanus and Tethys intermarrying became the parents of all the nymphs of river and sea; and similarly Hyperion and Theia became the parents of Helios, Selēnē, and Eōs (the Sun, Moon and Dawn), Coeus and Phœbe of the goddesses Leto and Asteria, and Cronus and Rhea of Zeus, Poseidon, and other gods; Themis (by Zeus) bore the Hours and the Fates, while Mnemosyne (by Zeus) gave birth to the Muses; and, lastly, Crius (by Eurybia) begot Astræus, who in turn begot the Winds and the Stars.

‡ Reverting in the body of my text to the Greek *κ* in proper names in place of the often misleading Latin *c*, I have kept the *γ* for its original purpose, which was to represent the sound of the Greek *υ*, the same as that of the French *u*.

§ See Gladstone, *Homer* (Macmillan), pp. 102, 103.

|| Il. 178, 563.

¶ Cp. page 125, note †.

ascribed to him as immediate parents Heaven and Earth, which is just what after the lapse of ages would naturally be said of any one of the three patriarchs who first after the flood began to repopulate the world; and they ascribed to him as consort a daughter of the Ocean, which was more natural still, seeing that in the ark he had lived with his wife on the bosom of the Ocean all the great while that it lay spread over the older world. That Noah, under the name of Deukalion, should be said to have been the grandson of Japhet instead of being his father, will not greatly surprise us, when we remember the vast gap in time (about 1500 years) that severs the Flood and the Dispersion from the earliest Greek writings in which we can read such traditions—those of Homer, which are placed roundly in 850 B.C., and those of Hesiod, which are fixed at about 735 B.C., and when we further perceive the legends to be so jumbled that sometimes Klymene is called the wife of Japetos, sometimes of his nephew Helios (the Sun) and sometimes of his son Prometheus. That the Grecian Noah and the Grecian Japhet, on the other hand, come so close together in genealogy points to an original agreement between the Greek narrative and the Bible.

Leaving Japhet himself, let us now look at his sons and named grandsons in detail.

The sacred text runs (in verses 2 and 3):—

“The sons of Japheth; Gomer, and Magog, and Madai, and Javan, and Tubal, and Meshech, and Tiras. And the sons of Gomer; Ashkenaz, and Riphath, and Togarmah.”*

Herodotus (who wrote his historo-geography about 450 B.C.) tells us of a nation called the Kimmerion, who had formerly dwelt along the northern shores of the Pontos Euxinos, or Black Sea, and in the peninsula which we now call the *Crimæa*, but who had been driven from their seats by the Scythians, and, passing round the eastern end of that sea, had overrun Western Asia in the reign of Ardys, king of Lydia (674 to 626 B.C.)† and had actually taken his capital, Sardis, near the Ægean Sea, but were at length driven out of Asia by his grandson Alyattes (615 to 559 B.C.)‡

* In the original Gômër, Mägög, Mādai, Jāvān, Thūbbāl Mēshēkh, Thīras, Ashkēnāz, Rīphāth, and Thōgārmāh. The names always recur with this spelling, except that Thūbal is sometimes written with long *u* or short *a* and thrice with plain *T*, that Ashkenāz is written Ashkenāz in Jeremiah and Thogarmah Thōgārmāh twice in Ezekiel, and that Riphath is also read Diphath (ך for ר) in 1 Chron. i (but Josephus has Riphath).

† Her. IV. 11, and I, 15.

‡ Her. I, 16.

With the latter part of this story practically agree the annals of Assyria : King Esarhaddon, as they tell, when a people named the Gimmirâa had attacked his kingdom, under their leader Teispes, met them on his northern frontier and defeated them in a great battle (B.C. 677), and so forced them to turn westward into Asia Minor. A little later, Gugu (whom Herodotus called Gyges and the immediate predecessor of Ardys) sent an embassy to Assur-baniapli, Esarhaddon's successor, with costly presents and two Gimmiric chieftains whom the Lydian King had captured with his own hand, entreating his help against the Gimmirâa, who were then invading his land. But help was delayed, partly because it was difficult to find an interpreter of the Lydian tongue ; and Gugu, though he found another ally, was defeated and slain by the invaders. His successor, Ardys, by swearing fealty to Assur-baniapli, obtained his help and ultimate victory over them. (Still it may have been reserved for Ardys's grandson to drive them out of the region).*

As regards the earlier part of the narrative of Herodotus, it is true so far as this, that the Kimmerioi did once inhabit the southern part of Russia, between the Don and the Tyras, or Dniester, including the peninsula which hems in the Sea of Azov : for Herodotus speaks of castles known to their successors as Kimmerian that flecked the region in his time, and of the grave of the royal tribe of the Kimmerioi, all slain in civil strife, which was still to be seen by the Tyras;† and Strabo (71-14 B.C.) says that in his day the chief port on the Palus Maeotis, or Sea of Azov, was called the Kimmerian Village, and states that the capital once stood upon the peninsula guarded by a rampart and a moat which crossed the isthmus;‡ and to our own time there stand the mounds of Eski Krim (Old Krim) marking the site of this prehistoric town. The Kimmerian straits and ferry no longer bear the names by which Herodotus knew them : but the Tartars, when they conquered the peninsula in 1236 A.D., called it Krim ; and as Krim-Tartary it was known to the Russians until they regained its possession and, dropping Tartary, expanded Krim into Crimea.§

But the statement of the cause and manner of the Kimmerian invasion of Asia Minor, although Strabo accepts it, may easily

* Sayce, *Fresh Light*, p. 37, and *Higher Critics*, p. 124-125 ; Pinches, *Old Test. and Hist. Records*, p. 390.

† Her. IV, 12, 11.

‡ Strabo, XI, ii, 5.

§ Smith's *Dict. of Class. Geog.*, "Cimmerii"; *Eng. Cycl.*, "Crimea" and "Russia"; Chambers' *Cycl.*, "Crimea."

be confuted both on general grounds and through other details of Herodotus' own story.

The mountain chain of the Caucasus is 670 miles long as the crow flies, and for one-fourth of its length itself skirts the eastern shores of the Black Sea, while at the opposite, or south-western end, it all but reaches to the Caspian Sea. There is a pass at this point, called the Kaspiai Pylai (or Caspian Gates), which Herodotus distinctly says that the Kimmerioi did not cross, because the Scythians in pursuing them crossed it, got into Media, and lost their prey; and there is just one other pass, right in the middle of the chain, which is no less than 8,000 feet high.* What the Scythians were pursuing the Kimmerioi for it is hard to make out, when the latter had so readily vacated their lands for them; but hard indeed it is to conceive that this nation fled eastward for six or seven hundred miles from their enemies (as the maps will show), and finished by making this tremendous ascent with their women and children and household goods while all the time they knew that there were vast untenanted plains and forests to the west of them, which centuries later absorbed untold millions of men.

But again, Herodotus tells us that the Scythians came upon them from the east, that the royal tribe alone was bold enough to vote for battle, instead of flight, that discussion grew so hot that it ended in mortal combat between them, and the rest of the Kimmerioi, and that the royal tribe were all slain and buried in one common grave near the river Tyras. Now this river lay far to the west of the places that in this historian's time retained the name Kimmerian. It is therefore perfectly clear that these Kimmerioi fled from their enemies not eastward, but westward; so they certainly could not have been the same Gimmirâa, who in their raiding march are found *first*, far eastward in Assyria, and then far westward at Sardis: although they may have been related to them as New Englanders are to Englishmen now.

The question is whether there were not Gimmirâa already settled in Asia at the same time as the Kimmerioi occupied that southern tract of Russia.

Now, prior to Esarhaddon's defeat of this people, we find a prayer of his to the Sun-God, beseeching him for succour, because "Kastarit, lord of the city of Kar-kassi and Marmiti-arsu, lord of the city of the Medes," had revolted against him,

* Smith's *Dict. and Eng. Cycl.*, "Caucasus."

and their soldiers, together with those "of the *Gimmirâa*, of the Medes, and of the Minni, had captured the city of Kisassu."* But Media, as all know, lies to the north-east of Assyria; and it is generally agreed, and can be readily proved from cuneiform literature, that the Minni stretched from Media to the north of Assyria, while Kar-kassi was probably a town of the Kassi, who inhabited the chain of mountains east of Assyria and Babylonia; but whether it was there, or, as Professor Sayce thinks, in Armenia, it is manifest that the Gimmirâa had already been in the region just north-east of Assyria long enough to make friends with divers nations there; and, in the absence of evidence to the contrary, we may reasonably infer that even then it was their proper home. And, bearing in mind that our genealogy gives Ashkenaz as the eldest son of Gomer, when we find in a Biblical prophecy, Ashkenaz as a "kingdom" grouped in confederacy with "Ararat" (or Armenia)† "and Minni" and with the kingdoms "of the Medes,"‡ we are sure that the eldest branch of Gomer's descendants, at all events, formed at the time of the prophecy (about B.C. 600) a settled state in that very region, and had not been driven out of Asia. Their site is further fixed for us in the first century A.D. by Josephus, who says, "Of the three sons of Gomer, Ashkenaz founded the Ashkenazians, who are now called by the Greeks Rhēginians;"§ and, since there are only two places recorded in ancient geography whose inhabitants could have borne this name—Rhegium in southern Italy and Rhagae in north-western Media, and the former was a city that had been founded by the Greeks themselves, the latter must be the city intended—a place important enough to bestow a well-known tribal name, for it was the greatest in all Media.

Again, the Armenians have always declared that they are descended from Haik, a son of Thogarmah and grandson of Gomer,|| while their northern neighbours the Georgians, whose language resembles theirs, maintain that they themselves are descended from a brother of his named Karthlos (their own name for themselves being Karthlians), and further that the Leaghians, who live just on the other side of the Caucasus and whose Grecian name was Legai, are sprung from a third brother called Legis.¶ But more, Josephus, who in his Greek

* Sayce, *Higher Critics*, 485.

† The Assyrian "Urardhu."

‡ Jer. li, 27, 28.

§ Ant. I, vi, 1, Dindorf's Greek text, which I quote throughout.

|| *Eng. Cycl.* "Armenia."

¶ Bryce, *Transcaucasia and Ararat*, 104 (*cp. Eng. Cycl.* "Caucasus," and Kiepert's *Atlas Antiquus*).

citation of Genesis x, 3, instead of Thogarmah has Thorgamēs,* says that he was the father of the "Thorgamaians, who, as the Greeks resolved, were called Phrygians"; and, in keeping with this, Herodotus tells us that in Xerxes' vast army, which was composed of contingents from all countries under his sway, "The Armenians, who are Phrygian colonists, were armed in the Phrygian fashion. Both nations," he continues, "were under the command of Artochmes, who was married to one of the daughters of Darius"; and this common equipment and command extended to *no other* contingent in that great array.†

Thus the third branch of Gomer's family are shown to have formed, long before our era, several of the large and well-established nations of Asia Minor, whose territory ran through three-fourths of the length east and west of modern Turkey-in-Asia. The prophet Ezekiel speaks of "the house of Togarmah of the north quarters."‡ The appellation is embedded in the description of a still future conflict; but whether it refers to Togarmah's tribes as they were located then or as they lie now, it is equally correct; for from beyond the Caucasus up to Ararat the Lezgians and Georgians are still spread, and, though the name of Phrygian died out with the Roman empire, the Armenians (who we may infer have absorbed their Phrygian kinsfolk) now stretch their name and nation in clumps and chains from Ararat to the Levant and to the Ægean Sea.

Of the second branch we have yet to speak, or speak more definitely. The statement of Josephus is, "Riphat founded the Riphathaiioi, now called Paphlagōnes." Herodotus, after speaking of the vestiges of the Kimmerioi on the northern shore of the Euxine, says, "*It appears likewise* that the Kimmerioi, when they fled into Asia to escape the Scythians, made a settlement in the peninsula where the Greek city of Sinōpe was afterwards built."§ The language shows that this is only an inference drawn from his finding Kimmerioi or else

* *Bryce*. The final *h* in this name and in Elishah of ver. 4 he omits, simply because there was no proper way of representing it in Greek writing.

† Her. VII, 73.

‡ If we adopt the revised rendering (as I ought rather in consistency to have done) "in the uttermost parts of the north," we have concord again, though not so obviously; for the Armenians *now* are spread in abundance all over the southern coast-land of the Black Sea, which *then* would have been accounted "the uttermost parts of the north," much as Sheba in Southern Arabia was counted "the uttermost parts of the south" in the Saviour's time (Matt. xii, 42, and Luke xi, 31).

§ IV, 12.

their traces there, and from his "putting more faith," as he says,* in the story he gives of their expulsion by the Scythians and their arrival in Asia as invaders "than in any other account" of the founding of the Scythian empire. All we know is that he found that Kimmerioi had settled, and perhaps were still established on that peninsula; and that peninsula *is in Paphlagonia*.

But, turning our thoughts afresh to the northern shore, where Kimmerioi had dwelt in numbers before they made way for Scythians, it is remarkable that the name of Riphath, head of our second branch, finds a distant echo in the geography of the Greeks.

The Grecian poets from an early period, and the geographers and historians after them, speak of a range of mountains called Ripaian, from whose caves and hollows the cutting blasts of Boreas, or the north-wind, blew, and beyond which, according to some of the authors, dwelt the Hyperborei, secure from these rough gales, in calm serenity; and, while Lucan places in the range the source of the Tanais, or Don, it appears from the geography of Ptolemy and Marcian to be the straggling chain of low hills which divides the rivers flowing to the Euxine from those that flow to the Baltic.† Pliny and the writers that succeeded him have, it is true, spelt the name for us with initial *Rh*; but the writers that went before him all wrote it with unspirated *R*‡ bringing it closer to Riphath, which is the more striking in that initial *r* goes without aspiration in only two other names or words in the Grecian tongue. That the Greeks should have shortened Riphathian into Ripaian, is not stranger than that they should abbreviate Skolotoi (the true name given by Herodotus)§ into Skythai (or Scythians) or that the Romans should know as Gauls a people who among themselves were known first as Galatai and then as Keltai.

The Ripaian Mountains, or Hills, were thus the natural northern boundary of the south Russian Kimmerioi, yet were too insignificant in themselves to have obtained a descriptive geographical name; but, just as Mount Alaunus is first heard of when the Alauni, or Alans, have first entered Europe, and is vaguely placed at divers points north of them by different writers,|| thus evidently taking its name from the people whose

* Her. IV, 11.

† Smith, *Dict. Class. Geog.*, "Rhipaei Montes."

‡ *Ibid.*

§ IV, 6.

|| Smith, *Dict. Class. Geog.*, "Alani."

boundary it was, so we may infer was it with the Ripaian Mountains—they were the northern border of the Riphaian Kimmerioi, and took their name from these, the children of Riphath, the second branch of Gomer's race.

But, while in eastern Europe the Kimmerioi did not extend northward beyond those hills, in the middle of our continent at least as early as Homer's time we find them settled much further to the north; for thus does the bard allude to them in his tale of the wanderings of Ulysses:—

Now she was nearing the bounds of the deep-flowing Ocean
And there lie both the country and city of Kimmerian men,
Who are covered with thick air and cloud. Nor ever does
The gleaming sun look down on them with his rays,
Neither when he mounts up to the starry sky,
Nor when he turns back from heaven and moves towards earth.
Arriving there we drove the ship ashore, and thence the tree-fruits
Took. And we our very selves again did go against the stream of
Ocean,

Until we reached the land whereto Circe had directed us.

Odyssey I, 22.

It is evident that under this description Homer could not have meant to refer to the Kimmerians of Southern Russia; for the Grecian navigators who brought him news of these would at the outset have told him that they lived along the northern shore of the Black Sea, and it would have been unreason, transcending the most poetic fancy, to assume that they also lived on the southern shore of the distant Ocean. The idea of this expanse of water completely encircling the habitable world beyond doubt arose from the combined reports of Greek seamen sailing under adventurous Phœnician captains to and along the Baltic Sea and of those gatherers of amber who at an early period brought their precious ware from the Baltic down to the Adriatic Sea, telling how the Atlantic Ocean was continued north-eastward by the German Ocean, and that again eastward and northward by the Baltic, and further east (as rumour perchance added) by the Gulf of Finland. It was from such informants that Homer must have heard the tale which he elsewhere tells, of a land where a man who could dispense with sleep might earn double wages, as there was hardly any night. As Gladstone rightly infers, in his chapter on the great poet's geography, one of the travellers he talked with must have visited the far north in summer-time and the other in winter; and hence he places the land of twofold sunshine beside Ocean in the west and the Kimmerian land of gloom,

beside Ocean in the east* (for Ulysses half circled the earth upon Ocean's tide ere his bark returned to civilised shores and well-known harbours). Now, jutting out into what both Strabo and Tacitus describes as the northern reach of Ocean is the peninsula of Denmark, which Posidonius, who wrote about ninety years before the Christian era, and Strabo, who wrote ten years after it, and other geographers of those times knew as the Cimbric Chersonesus, inhabited in their time by the nation of the Cimbri, whose name is uttered by scholars generally as *Kimbrī*.† Of these people and their country Tacitus thus writes:‡ “The Cimbri nearest to the Ocean occupy the same bulge§ in Germany, now a little state but very great in renown; and the traces of their ancient reputation remain widely spread—camps on both shores,|| and enclosures by the extent of which you may measure the mass and the troops of the nation and the belief to be placed in the existence of so great an army.” These Kimbri, then, I believe to be the Kimmerioi of whom Homer wrote; and I may add that the belief that they were one people with the Kimmerioi of Southern Russia was held by Posidonius and Strabo, and is common among historians in our own day.¶

In speaking as he does of the decline of the Kimbri in power and population, Tacitus of course had in mind the mighty invasion of the more genial and fruitful regions of central and southern Europe in the years 113 to 101 B.C., when, in league with the Teutones, another northern people, but marching by a different route, the Kimbri passed into Noricum (or Austria Proper) and Illyricum, back into Switzerland, where they were joined by two Celtic tribes (the Tigurini and Ambrones), through Gaul into Spain (where they remained three years), and back into Italy. The whole host is said by Roman writers to have

* Gladstone, *Homer*, p. 60.

† Posidonius and Strabo, VII, ii, 1, p. 292, and presumably all other Greek geographers write the name *Κιμβριοί*: and by philologists and reformers of the English pronunciation of Latin *c* and *g* are always uttered hard (as *k* and as *g* in *gun*), though it is arguable whether before *e* and *i* they were not sometimes uttered as in Italian they are, like *g* twice in *ginger* and *c* twice in *cicerone*.

‡ *Germania*, xxxvii.

§ The word is *sinus*, but refers to the *ingens flexus in Septentrionem* along which the Frisians and Chanci were spread (c. xxxv).

|| *Utraque ripa*, which probably means on both banks (of the Elbe at its estuary), although no river has been hinted at.

¶ See Smith, *Dict. Class. Geog.*, where it is simply dismissed as fanciful.

contained 300,000 fighting men; while they had with them a much larger number of women and children. The latter fact shows that they intended to settle in the south; but meanwhile they unscrupulously plundered the tribes whom they passed through. Four consular armies, besides lesser forces, were utterly defeated by the barbarians, usually by the Kimbri in particular; but Kimbri and Teutones were alike out-generalled by the famous Caius Marius, and were utterly annihilated, the women putting an end to their lives when they saw their husbands slain.*

The record of Cimbric settlement in Denmark or its near neighbourhood would seem to have been retained up to the present hour by a seaport on the southern coast of Sweden which from remote times has borne the name of Cimbrishamn, or the Kimbri's Haven; and in the little fishing village of Kivik, close by, there still stands an ancient monument "which has been supposed to be Keltic, but which is considered by Professor S. Nillson to represent ceremonies of Phœnician Baal-Worship."† That the Kimbri were of Keltic race we shall presently prove, and that the Kelts, as distinct from the Teutons, had a worship allied to the Phœnician is coming more and more to be believed, but, if the monument be truly Phœnician, not Keltic, it tends to show how early those regions were visited by ships from the East, and how Homer may have got his information about the northern Kimmerioi, or Kimbrioi.

Moving again to the west, we come in this land of ours to a people who from time immemorial have called themselves Cymri or Gymri (pronounced Kūmri and Gūmri) and whom Englishmen proper know as Welsh, simply because to their early forefathers, as to the Germans now, *Welsh* meant *foreign*. The double form of the native name is accounted for by the fact that in the Welsh tongue the final letter of one word often determines whether the initial sound of the next shall be *k* or hard *g* (the same rule prevailing as to *d* and *t*): but, if the Welsh too belong to Gomer's family, we can the more readily understand how portions of this should in one country have been known as Kimmerioi and in another as Gimmirāa. And as for the *b* in Cimbri, or Kimbri, that is only like the euphonic *b* that the French and we English have inserted in *number* (once the Latin *numerus*) and that we have slipped into our own

* Smith, *Shorter Hist. Rome, et passim*.

† Murray's *Handbook of Denmark, Sweden and Norway* (1871). "Christianstad."

words *nimol* and *slumerian*, turning them into *nimble* and *slumber*. Moreover, our own island presents us, at the same time, with an analogy to this change and a further link in the chain of evidence; for that part of England which lies north of the Mersey River and has the Pennine Mountains for its eastern wall, and which the Anglo-Saxons failed to conquer for about four hundred years, was known to them as Cumerland, or Cumbreland, and as Cumberland a large section of it is known to ourselves to-day. One with the Welsh too, during that conquest, as both language and history show, were the men of Cornwall and of Brittany,* so that the name Kumri also applies to them.

And further, as is generally known, the literature ancient and modern of the native Irish and of the Highland Scots and the vestiges of the old Gaulish tongue that have descended to us prove that Erse, Gaelic, and Gaulish were nearly related to Welsh, so that the whole of France and of the British Isles was once inhabited by a homogeneous people speaking a language akin to modern Kumric, a language which we call Keltic. That the Welsh should differ in appearance and somewhat in language from the Erse and the Gaels is accounted for by a presumed early colonization of south-west Britain from Spain, an idea first mooted by Tacitus, who says: "The dark faces of the Silures and their usually curly locks, coupled with the fact that Spain lies over against them, create a belief that ancient Iberians crossed over and took possession of this region as a settlement."† But in spite of foreign admixtures, when Sir Richard Garnett examined a list of Erse monosyllables given in an Irish grammar he found that out of 270 no fewer than 140 had the same sense and origin as words of like form in the Welsh tongue, while 40 more were clearly related to Welsh words.‡

A year ago, for a second time, there was held a representative gathering of all the branches of the Keltic race that still have a distinct existence. The gathering-point this time was Holyhead, in the island of Anglesey; and, after a cordial interchange of speeches and the singing of a united anthem, whose verses were in Kumric, but its chorus in all their languages, the representatives set up a pillar of six large stones in honour of

* Who are descended in part from the British followers of Maximus, who crossed over to Gaul in a vain attempt to establish his claim to the empire, and in part from fugitives from the war with the Anglo-Saxons.—Knight's *Hist. Eng.* I, 54, 55.

† *Agricola*, XI.

‡ Chambers's *Cycl.*, "Welsh Language."

their six "nations"—Erse, Gaelic, Welsh (or Kumric), Manx, Cornish, and Breton.

But, turning back into the heart of Europe, we shall have further reason to conclude that the Kimbri belonged to the same Keltic race as the Kumri. Caesar and Tacitus both tell us that the Helvetii (the ancestors of the French-Swiss) were a Gallic tribe;* and whereas the Kimbri marched apart from their German allies, the Teutōnes, in that mighty trek of which we have spoken, they induced two tribes of the Helvetii to march in their own company. Why was this, unless, unlike the Teutōnes, these could understand the same words of command as themselves—unless, in short, they themselves were Kelts like these Helvetians?

And, again, we shall find, partly from history and tradition and partly from stronger evidence, that the Keltic race, to which both Kumri and Kimbri belonged, preceded all other races as colonists of Central Europe from the Volga to the Rhine.

It would be natural to infer, after reading of the incursions of the Germans into Gaul which prevailed in Caesar's time,† that the invasion of Italy by the Gauls in the sixth century B.C. and their settlement there over the whole great basin of the River Po‡ was due to a previous retreat of the rearguard of the Keltic race before German invaders; and accordingly we find a tradition expressed in Strabo (A.D. 14) that the Boii, who were among those settlers of northern Italy, had previously dwelt in the Hercynian Forest (a sylvan region which in those days covered the centre and west of Germany and the northern half of Austria), while Tacitus is both positive and explicit, stating that they were driven from that forest home by the Marcomanni, but had bequeathed their name to it, for it was still called Boienna (Bohemia).§ And, in like manner, Tacitus tells us that the Helvetii had dwelt between the Rhine, the Maine, and the Hercynian Forest until they were driven southwards by the Germans.||

Again, a century before the Christian era and perhaps right up to it, there were Keltic tribes on the Ister, or Danube; for Strabo says that, before entering Helvetia, the Kimbri had

* Caes., *De Bell. Gall.*, I, 1 and Tacitus, *Germ.*, xxviii.

† Caes., *De Bell. Gall.*, I, 31, 32.

‡ Forming Cisalpine Gaul (see Smith's *Smaller Hist. of Rome*, pp. 45, 47, 113, 114).

§ Strabo, VII, ii, 2 (p. 292), Tacitus, *Germ.*, xlii and xxviii.

|| *Ibid.*

descended to the Danube and to the Scordistian Kelts, and then had fallen upon the Teuristai and Tauriskai, Keltic tribes also ; and, while the abode of the Tauriskai has been fixed by geographers as in Noricum, the Scordisci have been located in in Pannonia (or Hungary).

And what of our stronger evidence ? The names of rivers and large streams in the Old World must clearly be all ancient and mostly primeval. Long before a conquering tribe had time to reflect upon a change of name for a river in their newly-won territory, even if they cared to change it, they would have used it so often in transactions both warlike and peaceful with the conquered tribe, that they would insensibly have adopted it, although in some cases, regarding what was really a descriptive name as a proper name, they would have added a word for *river*, *brook*, or *water* thereto, which in due time in the mouths of after-generations would coalesce with the first into a single name once more. Thus, if we find the river-names of Central and Eastern Europe sometimes to be identical in form with common river-names of countries certainly Keltic, and if we further find them nearly always to be made up of apposite Keltic words (modified indeed in many cases through the careless repetition of many generations, but still perceived by comparison with one another to have had that origin), we shall be sure that the Kelts once dwelt over the whole vast area, and that they were its first reclaimers and cultivators. Now this is just what we do find : or rather—to make our case stronger still—we mostly find the ancient river-names of that great region to have their origin and significance in that form of Keltic speech which is still known as Kumric. Selecting from the admirable compilation and argument of Isaac Taylor some of his most salient evidences, I now proceed to prove this by a sufficient number of illustrations, leaving the reader, if perchance he be still dissatisfied, to peruse the vast number of tabulated names by which Taylor establishes his case.*

And, first, let us examine the land of the Kumri and of its next neighbours, along with the ancient home of the Kimmerioi in Southern Russia. In Welsh, or Kumric, *rhe*, and in Gaelic *rea*, means *swift* ; and accordingly in England there is a stream

* Isaac Taylor, *Words and Places*, chap. ix, his aim is not quite the same as that of the present writer ; he says nothing of Gomer, the Kimmerioi, or the Kimbri, but simply proves that the Kelts were the first race to pass through middle Europe from east to west and to colonise it.

called Rhee in Cambridgeshire and another called Rhea in Staffordshire; in both Ireland, Scotland and England there is a stream called Rye, and in England, besides, one called Rey and two called Ray. With this nomenclature compare the name by which the Volga was known to classic writers—the Rha—and it is seen to be Kumric.

Again, according to Armstrong, says Taylor, *don* is a Breton (and therefore Kumric) word for *water*, and formerly existed in Gaelic, while *tain* is a Gadhelic (that is, northern Keltic) name for the same element*: and so in England, in Scotland, and in Ireland, there is a River Don; in Ireland there is a stream called the Bandon; in England and in Scotland a Dun and a Dean; and in England, besides, a Dane; while there are also in England a Teane, a Teign, and a Teyn. With this compare the names of the other three chief rivers of Southern Russia both in their modern and in their classic form—the *Don* (or *Tannais*), the Dnieper (or *Danapris*), and the Dniester (or *Danastris*), as also the *Donetz*, the name of a large tributary of the Don.

Let us now examine the known Keltic lands along with middle Europe.

Whereas we have the *Roden* in England, and the Rhodanus (mod. Rhone) in Switzerland and France, we have the Rhadanau in Germany.

In Kumric *dwr* (pron. doer) means *water*; so we have the Adour in England and France, the Douro in north-western Spain, where we know the Kelts were settled, and the *Durdan* in Normandy; and we have the *Oder* in the heart of Germany.

Rhin is a Kumric word connected with the aforesaid *rhe*, and means that which runs; and so we have the Reinach in Switzerland, the Rhine in that country and Germany, and the Rhin in Germany alone.

Then *aron* in Kumric means *river*; and so we have six Avons in Scotland, two in Wales and Monmouthshire together, and six in the rest of England, four Avons in France in the river-systems of the Loire and Seine, two Avens and an Aff in Brittany, and an Avaenoge in Switzerland†: and similarly we have the *Donau* (or Danube) in Germany and Austria, the *Rhanadau*

* Isaac Taylor, *Ibid.*, p. 138, note, Gadhelic means belonging to the northern group of Keltic tongues—Erse, Gaelic, and Manx.

† Observed and added by the writer: it flows into the Lake of Geneva between Lausanne and Morges.

in Germany, the *Moldau* in Bohemia, the *Drave* (= *Dur-avē*) and the *Save* (= *Is-avē*) in Southern Austria and Hungary.

Wysg in Kumric means a current, and *wisge* in Erse and Gaelic water; and so we have the river Wissey in Norfolk along with such hybrid and suggestive names in the Fen country as Wishford, Wisley, Wistow and Wisbeach; while we have also *Islas* in Scotland, an *Isle* in Somerset, an *Isle* and an *Isac* in Brittany and an *Isère* in France proper; and similarly we have the *Isella* (the modern *Yssel*) in Holland, German streams called *Isen*, *Isar*, and *Eisach*, and *Ister* (= *Is-ter* or *tur*) the classic name for the Danube, perhaps given to it at a different point in its course better known to the Romans. Again, we have *-is* as an ending to river-names in known Keltic lands such as the *Ligeris* (now the *Loire*) and the *Atesis* (now the *Adige*); and similarly we find the *Scaldis*, or *Scheldt*, and the *Vahalis*, or *Waal*, in Holland, the *Albis*,* or *Elbe* in Germany, and the *Tanais*, or *Don*, in Southern Russia.

Lastly, *cam* means *crooked* in Kumric; and we have two river *Cams*, a *Camil*, a *Camlad*, and a *Cambeck* in England and a *Camlin* and a *Canon* in Ireland: and, in like manner, we have the river *Kam* in Switzerland and the *Kamp* and the *Cham* in Germany.

It is manifest, both from these geographical records as well and from the stories of Herodotus and Strabo, that the Keltic movement, carried on for many hundred years† before the Christian era, was from east to west. Yet Julius Cæsar (50 B.C.), in speaking of the religion and sway of the Druids in Gaul and especially of their acting as judges in all disputes, writes thus: "It is thought that this lore of theirs was discovered in Britain, and thence brought over into Gaul, and now they who wish more carefully to obtain the knowledge mostly go thither to learn it."‡ And, when we pass over to Britain, we find that the centre of Druidism was in that part of the island where the people have always called themselves Kumric: for it was in *Mona*, or *Anglesey*, in northern Wales; and a hundred years latter Suetonius overthrew for a time the power of the Druids for kindling insurrection by a wholesale slaughter of them in that island.

* Probably meaning *white water* (Taylor).

† Probably two thousand, for by the recent astronomical calculations of Lockyer and Penrose founded upon the orientation of Stonehenge, it was found to have been erected about B.C. 1600.

‡ *De Bell. Gall.*, VI, 13.

What do these facts indicate? That the Kelts who bore the name of Kumri were the eldest branch of the original Keltic nation—a “royal tribe”—who, as was natural, were more respected than the other tribes, and were deemed to have best preserved the early traditions of the race. And, in that case, it is reasonable that we should find them keeping the name of its original progenitor. Yet why, someone might ask, were they not called Riphathi instead of Kumri, if, as the writer has striven to show, they were descended from Riphath’s branch of Gomer’s family? Possibly because Riphath had died long before his father;* and his children and grandchildren had become the special delight of the patriarch Gomer. The writer has had among his acquaintance (and surely his experience cannot be singular) children left orphans at an early age and brought up by an uncle or a grandfather whom they called “father” to the end of his days. We can hardly suppose that in those early times, before apostasy began, and only two generations after men had been sent forth with a fresh promise of fruitfulness “to replenish the earth,”† that anyone was left an orphan in childhood or youth: still, when contemporary patriarchs were having their first children at thirty or forty years old, and living four hundred years after, if Gomer lived only 340 years in all, and Riphath, his second son, was born when he was 60, and himself died at 140, Gomer, through outliving his son by an equal period of 140 years, would have woven far more ties with Riphath’s descendants to be remembered by than Riphath himself would have done.

But, whatever was the cause, there is a remarkable allusion in the Bible itself confirming the historic fact. Let us turn again to that prophecy, already quoted from, touching a mighty invasion of Israel’s land just before the final reign of righteousness will be established there, and we shall find in the enumeration of Israel’s foes “Gomer and all his bands”‡ immediately followed by “the House of Togarmah of the north quarters and all his bands,”§ but no other son of Gomer or branch of his race by name. What are we to infer from this? That, whereas a nation or a group of nations, in the last ages of human rule, was to show by their name or else rightly to claim

* Even, as in the next chapter, in another genealogy, we read that Haran died before his father Terah’s migration.

† Gen. ix, 1.

‡ Ezek. xxxviii, 6 (R.V., *hordes* . . .).

descent from Togarmah,* there was to be another set of peoples who were descended from one or possibly from both his brothers, but whose name or claim would betoken only that they were descended from Gomer himself. And this we have proved to be the case; for the Armenians and Armenio-Phrygians rightfully affirm Togarmah to be their ancestor (as the Georgians also claim, though probably with less reason, for themselves and the Lesghians),† but, on the other hand, while a goodly portion of the Kelts have been and are known as Kimbri, Kumri, or Gumri, no other grandson of Japheth is pointed to by the name of the rest, and geography concurs with ancient history in proving that they once all bore the name of Kimmerioi or Gimirâa, the children of Gomer.

The expression "and all his bands" (or "hordes," R.V.), which is used to describe only the contingents sent by Gomer and Togarmah to that vast army, is not out of keeping with the present distribution of the Armenians, who, besides being abundant in Armenia proper and Asia Minor, are very numerous in Turkish towns on the western side of the Bosphorus, and are thickly scattered in Russia;‡ but, as applied to the Gomerites proper or Kelts, the description accords well indeed with their status and geographical positions, for, besides forming six or seven§ peoples separated from one another by intervening nations of different origin, they are the chief basic element in the great Romance nations—the French, the Spanish and the Italian.

And here I would say something as to a theory which is

* In both Ezek. xxvii, 14, and here the name is written with *T* instead of *Th* in the Hebrew text.

† To judge by the comparison of languages made in Adelung's *Mithridates*, by means of the versions of the Lord's Prayer, the English *Cyclopædium* is wrong and the Georgian speech is not akin to Armenian, nor by the Welsh version with the Georgian version can we find any resemblance to Welsh; but Adelung admits that many Armenian words have worked their way into Georgian, and it may be that Armenian conquerors, long before the Christian era, infused these together with an aristocracy that passed on Armenian traditions at the time when Georgia appears to have been in vassalage to Armenia—at the time of the Babylonian and early Persian empires (*Eng. Cycl.*, "Armenia").

‡ Which fact may also be covered by the descriptive phrase, "from the uttermost parts of the north," as the R.V. has it (see *ante*, p. 131 footnote †).

§ To the six aforesaid ought to be added the Walloons in Belgium, who are descended from the old Belgic Gauls, who number two millions, and whose language contains more Celtic words than any other dialect of French (*Chambers' Encycl.*, "Walloons").

based almost wholly upon the misunderstanding of an Assyrian allusion to the northern kingdom of Israel. The theorists say that the Assyrian inscriptions called the Ten Tribes of north and east Canaan "Beth Khumri," or that they so termed the tribe of Ephraim, at all events; and that some time after these northern Israelites were carried into exile, they, according to the statement of Esdras (in Book II, chapter xiii), "crossed the Euphrates by the narrow passes" (that is, where it works through mountain gorges), "for the Most High showed signs for them," and thence made their way by "a year and a half's" marching (as that writer again tells) to "a further country, where never mankind dwelt," even as they had resolved to do; and this region truly is called "Arsareth," as Esdras tells, for is there not a river in Poland by that name, and were not the Kimmerioi once living near to it, as Herodotus and Strabo declared? But the Kimmerioi had, before their migration to more westerly regions, been so long settled in southern Russia that they left extensive ruins there for Herodotus to gaze at; they had time also to bestow their name on a country which is distinctly off the route of this alleged Israelite march—the peninsula of the Crimea, and to protect it with a vast trench across the isthmus of Perekop; it is hard, therefore, to comprehend how they could be identical with those rapid emigrants of Israel. Still harder is it to understand, if the theory be true, how Homer, who, by the researches of scholars, is determined to have written about 850 B.C., or more than a *hundred years before the final capture of Samaria*, wrote of Kimmerioi, settled long *before his time* on the very borders of the northern Ocean.*

But, as a fact, the name Beth Khumri has not yet been found applied to a people as distinct from the country they were in. When speaking of a great victory in the sixth year of his reign over Irkhuleni, King of Hamath, and his allies at Qarqara, Shalmanezzer II. of Assyria mentions among these and their equipments 2,000 chariots and 10,000 men belonging to Akhabbu mât Sir'ilâa,† and that this means Ahab, King of the land of Israel, is proved both from the geographical position of Qarqara, the royal city of Hamath, and from the fact that twelve years later Shalmanezzer records his then victory over Khaza'iln (Hazeal) and his besieging him in Damascus,‡ and his receiving

* Sayce, *Higher Critics*, p. 390, etc.; Pinches, *Old Test. and Hist. Rec.*, p. 329.

† Sayce, 395, 396; Pinches, 336, 337.

‡ Though unsuccessfully, for God had decreed that he should be king over Damascus and be a scourge to Israel.

tribute from Jaua, son of Khumri. That is, evidently, the Jehu of the Bible who was the contemporary of Hazael and the near successor of Omri, the founder of Samaria. This is the only Assyrian notice as yet found of a force of Israelites fighting outside their country; and we see that the name there applied to them is Sir'ilâa, not Beth Khumri. But where the capital or the territory of northern Israel is mentioned, there we find the latter expression used. Thus King Sargon (the Sargon of Isaiah xx) tells how he has settled Thamudites and other colonists in Bit Khumri,* and Tiglath-Pilezer III. speaks thus: "The country (mât) of Bit Khumri [I occupied]; all its men [as well as their possessions] I carried away to Assyria. Pekah, their king [I] slew, and I appointed Hoshea to be king over them."† And lastly, Adad Niraii III., grandson of Shalmanezzer II., when enumerating his vassal states, speaks of the land of Khumri simply, without an intervening Bit. Both Sayce and Pinches hold that Bit Khumri means not the house or people of Israel, for calling whom by the name Khumri there is otherwise no cause known to anyone, but "the house of Omri"—that is, Samaria, the city which Omri built and made his capital.‡ It certainly could have had no other origin, as the fact that Jehu was called a son of Khumri by contemporary Assyrians also shows: and if the Anglo-Israelites, accepting this origin, say that the name was afterwards extended to the people themselves, and borne with them upon all their travels and through the ages, it would be strange indeed and contrary to the usual decrees of God, who wills not that the name of the wicked should be had in remembrance, especially on the lips of His earthly people: for we read of Omri in the inspired record that "he did that which was evil in the sight of the LORD and dealt wickedly above all that were before him."§

As for Jehu's being called a "son of Omri," when he had obtained the throne by slaying Omri's grandson, it is probable that the Assyrian royal scribes did not trouble their heads about such details; he reigned at Samaria, which had been founded by Omri (a powerful king, as the Moabite stone proves, for he had made Mesha's predecessor his vassal); therefore in the thought of the scribes Jehu was a son of Omri. And yet after all he may have been a descendant through the female line from that king, and have obtained his captaincy, as Amasa obtained his chief captaincy from Absalom, because he was a relative;

* Sayce, 544, cp. for spelling, Pinches, 332.

† Sayce, 410; Pinches, 352, 354.

‡ 1 Kings xvi, 23, 24.

§ 1 Kings xvi, 25.

and we remember that the "queen," or queen-mother, of Belshazzar, when addressing him, spoke of Nebuchadnezzar as his father, whereas he was certainly not a paternal ancestor, though the founder of Babylon's greatness and probably the father of Belshazzar's mother (as recent discovery tends to show).

I would add that two records are found of the paying of tribute by Jehu to Shalmanezzer II. In the first, after telling how he shut Hazael up in Damascus and then ravaged his country, the Assyrian King says, "In those days I received the tribute of the Tyrians, the Sidonians, and of Yaua, son of Khumri." In the second, on the famous Black Obelisk which stands in the Nimrod Central Saloon, at the British Museum, is seen the Assyrian king with attendants behind him receiving the ambassador of Jehu, followed by other Assyrian officials, who is prostrating himself before the king, and underneath are the words, "The tribute of Yaua, son of Khumri: silver, gold, a golden cup, golden vases, golden vessels, golden buckets, lead, a staff for the hand of the king (and) sceptres I received."* And the face of the northern Israelite ambassador is the face of a modern Jew, with the same strongly marked aquiline nose: which shows how silly is the contention that these features are peculiar to the true Jews only; while, as for the further absurd supposition that they came upon them as a mark of disgrace after they had sinned more grievously than the northern Israelites, the same features are conspicuous upon all the figures of Jews that are so abundant in the Assyrian bas-reliefs of the siege of Lachish, when the mass of the northern tribes had already gone into exile for their sins, and the revivals of true religion among the Jews proper under Hezekiah and Josiah were yet to come.

The tribute that Jehu paid to Shalmanezzer II. was indeed a heavy one, although perhaps we are to understand that it was a *danegeld* once levied rather than a tax annually paid, and that Shalmanezzer took away these treasures from Jehu, just as Shishak had taken away Solomon's golden shields from Rehoboam; but it incidentally shows how rich in gold the land of Israel had once been in Solomon's days (as the Scripture tells us), and for a good while after.

And the Assyrian word for *silver* here used—namely, *caspi*—suggests the origin of a well-known geographical name which the Greek and Latin writers were not able to trace. The

* See Pinches, pp. 336, 337; and British Museum monument and printed Assyrian guide-book (p. 25, and Plate II).

Assyrian Kings held sway over Media and Upper Asia as Herodotus tells for 520 years;* and they therefore were in frequent political and commercial intercourse with the shores of the Caspian Sea, and through them much of its trade and its fame must have passed to other countries.

Did they not bestow on it this name of Caspian because of its silvery appearance, even as the first Spanish colonists of Buenos Ayres bestowed the name of Rio de la Plata, or Silver River, upon the broad expanse of water that flowed past their new home?

We have spoken of Togarmah and the spread and present position of his family; we have done the same by Riphath; and we have dealt somewhat but not sufficiently with the position and early movements of Ashkenaz. Far from sufficiently; for Ashkenaz is the progenitor of some of the mightiest of our modern nations, as I shall briefly show.

It is remarkable that the Pontos Euxinos, or Black Sea, bore still more anciently the name of Pontos Axenos.† The Greeks, as trading navigator and colonists, deeming the appellation to be of ill-omen because *axenos* was the Greek for inhospitable, changed it to *euxenos*, or according to the Ionic dialect *euxrinos*, hospitable. But it seems little likely that, as has been suggested, they gave it the first name because of barbarous tribes that dwelt upon its shores. The Greeks, who sailed about and colonized every island in the Ægean Sea in prehistoric times and were in friendly intercourse with the Troad close to the Sea of Marmora by the time of Solomon at least,‡ could hardly at any historic period have called the Black Sea the Inhospitable. Surely the voyage of Jason in the Heroic Age long before the siege of Troy, as far as Colchis at the remote end of the sea, would lead us to conclude this. Rather do I prefer the suggestion to be presently borne out by a good array of facts, that the name is that of Ashkenaz slightly inverted, as *ash* was by our Anglo-Saxon forefathers, and still is by some of our ordinary fellow-Englishmen slightly inverted into *ar*: and I hope to show a similar change presently in the name of descendants of Ashkenaz.

Again, Strabo speaks of a time long anterior to the one fixed by Herodotus when raids by the Kimmerioi were frequent. He says that Homer might well have sung of this people, seeing that in the poet's own time and earlier they had ravaged Lower

* Book I, 95.

† See Smith's *Class. Dict.*, and Liddell and Scott's *Lexicon*, *sub voce*.

‡ *i.e.*, at the time of the transactions that led up to the Trojan War.

Asia. And in another place he says that they invaded "now Paphlagonia, now Phrygia, until Midas is said to have met his death by drinking the blood of a bull," a statement that wears a fabulous look and makes one think that he is speaking of the first Midas, King of Phrygia, who is alleged to have been contemporary with Silenus, the teacher of Bacchus, and to whom are ascribed sundry marvellous and incredible adventures. Lastly, there are distinct traces left in geographical and regal names of a very early migration of the Ashkenazian branch of Gomer's family, which we have seen to be really indicated by Herodotus and Strabo.* In Bithynia on the borders of the Propontis (or Sea of Marmora) there was a Lake Ascania; in south-western Phrygia there is another; and midway between them lay Troas, in whose royal family we find in the days of the Trojan War a prince Ascanus. Now princely names are specially apt to be repeated after very long intervals: thus we have a thousand years intervening between Sargon I. of Agade, and Sargon II. of Nineveh, and many hundred years between Tiglath Pilezer I. and Tiglath Pilezer II. of Assyria; and again we find Ramses II. of Egypt calling one of his sons Khamus after his god, Khem, or Kham, whom we know to have been his ancestor Kham, the son of Noah.

Again, bearing in mind our before proved point of the common descent of the Phrygians and the Ashkenazians from Gomer, it is remarkable that some of the classic poets should call the Trojans Phrygians, so much so that as Phrygia Minor it is marked upon Kiepert's ancient maps.

What then do we conclude? That these two lakes bore the same name through being at or near the northern and southern boundary of the tribe of Ashkenaz, when a portion of it first migrated westward from the plains of Shinar, while another moved eastward to the Caspian Sea; and further that the royal house of Troy were probably descendants of the eldest stock of the western Ashkenazians, and repeated the name of their ancestor at intervals.

Now if Ashkenaz found the descendants of Tiras (or the Thracians, as Josephus affirms, and I hope in an after essay to prove, them to be) already in occupation of the plains of Thrace, with a rearguard in Bithynia (as they are abundantly proved to have had by allusions in Herodotus and Strabo), and if the Riphatheans had already (as is likely from their reaching Britain before 1600 B.C.)† spread themselves over the south of Russia,

* Strabo, I, i, 10, and iii, 21.

† *Vide ante*, p. 140†.

there was only one route left for the remaining branch of Gomer's race, namely, northward into west central Russia. Thither, then, they went; and, finding Germany but little occupied, they spread over that country. But the vast bulk of its surface was then covered with forest: so, to avoid the labour of clearing their ground of trees, the early settlers beyond doubt first tilled the soil and built homesteads along the green glades by river and sea. And thus their advanced guard, moving along the southern shore of the Baltic Sea and thence from island to island at its western end, presently found themselves in Sweden. Accordingly we find the most fertile southern part of that country known from time immemorial as Scania, and the islands of Denmark, together with this province, known to later Latin writers as the Islands of Scandia (an eponymic *d* having crept in, such as helped to change Normannia into Normandie or Normandy).*

Crossing thence to Germany, whose people have the same "Teutonic" basis to their language as the Swedes, we find the inhabitants of the ancient State of Dessau to have long claimed descent from Ashkenaz of the Bible; and, in keeping with this claim, a ruler of theirs in the twelfth century, who held for a while the Saxon estates of Henry the Lion, the founder of our House of Brunswick, added to his baptismal name of Bernard that of Ascanius, declaring that his ancestors came from Lake Ascanius in Bithynia. But the claim is supported by stronger testimony from outside; for the Jews of Russia, Germany, and other countries have, from time immemorial, known the Germans as Ashkenazim.

It was thus a wave of Ashkenaz's race from *Asia Minor* that first drove a wedge of Teutonic life and institutions into what we now know as Germany, but which was then (as I have before shown) thinly peopled with Kelts, or Kumri; and it was the same wave that first colonized southern Scandinavia, where in the time of the historian Tacitus (A.D. 100), we find a settled people called the Suii, or Swedes.

But far away, on the northern borders of Media, a rearguard of the same great family remained behind. We have already fixed the position of this people, who formed the Biblical kingdom of Ashkenaz, and who as allies of their neighbours, the Medes, caused so much trouble to King Esarhaddon of

* And such as transformed *tener* (Lat.) into *tendre* (Fr.) and *tender* (Eng.), and *Allemannus*, *Allemanna* (L.) into *Allemand*, *Allemande* (F.)

Assyria. They dwelt near Rhagae in classic time, as Josephus (A.D. 75) showed us—a great city which, as I have said, lay midway along the southern shore of the Caspian Sea. Now at that point there begins a chain of mountains which runs eastwards along the shore of that sea, and far eastward beyond it, forming a natural southern boundary to the territory of the Bactrians and of the Sakai, who in the time of Herodotus (A.D. 450) were spread over southern Turkestan, as the Massagetae were over northern;* and Ammianus Marcellinus (the Emperor Julian's librarian and historian, who wrote about A.D. 350), after saying that they came next to the Sogdians, who dwelt on the march of the Oxus, further states that they were overhung by the Ascanimian Mountain or range of mountains.†

Now on their eastern border there could have been no mountain, for all is flat up to the Caspian Sea; and, again, the range that lay north of them he names just afterwards by its well known name of Imavian; and the range that lay beyond them to the west he is most unlikely to have used as a boundary mark for defining their position, even if he knew the name of so remote an elevation: like other topographers, he, of course, tried to help his readers to fix the position of the country by mentioning its relation to some nearer object with which they were familiar. We must therefore conclude that he knew the long *southern* range aforesaid by the name of Ascanimian. Again Strabo (about A.D. 1) speaks of irruptions of these Sakai by which they "gained possession of Bactriana" on one side of the Caspian and on the other, of "the best district of all Armenia" which "took from them the name of Sacasēne."‡

We have thus a range of mountains called in classic times *Ascanimian* ending westward at Rhagae, around which we know dwelt descendants of Ashkenaz; and we find at the outset of the Christian era a little north of them, cut out of the neighbouring kingdom of Armenia and just south of the Caucasus Mountains, a country called Sacasēne. Whether Strabo be right or wrong in stating this to be a colony of the Sakai (who are called by Herodotus a Scythian people, and who still dwelt in Turkestan late in the fourth century, or long after the

* Cp. Her., I, 153, III, 93, VII, 64, with I, 204 and 205, the *Araxes* here spoken of is really the Oxus probably called in full *Rha Oxos*. See Rawlinson's Herodotus, I, 120.

† Ascanimia Mons; but the Apennine Range is called Mons Apenninus, and so on. Amm. Marc., XXIII, 60.

‡ Strabo, XI, viii, 4.

Sakasanoi seem to have migrated from their own country) one thing cannot remain doubtful—the Sakasanoi, both from their position and their closely related name, must have formed part of the Rhaginians, or eastern Ashkenazians (the change from Ashkenaz to Sakasen involving little more than an easy inversion of an unaccented syllable and the dropping of a short vowel prefix, which is a very common phenomenon). Now let it be borne in mind that the Saxons are not mentioned in that most detailed description which Tacitus gives of the peoples of Germany in his own day (about A.D. 100)—not even although he includes in his account Denmark and Sweden, where, he says, dwelt the Cimbrî and the Suii. He mentions the Angli, but no Saxones; and these first appear in history when Carausius was appointed, about A.D. 280, to guard our eastern British coasts against the pirates, and was termed *Comes litoris Saronici*, Count of the Saxon Shore. At some time after the Christian era between the first century and that date, a second wave of the great family of Ashkenaz, calling themselves Sakasanoi, or rather Sachsen, marched northward through the Caspian gates into European Scythia, and thence onward with the tide of their German kinsmen, the Goths, into northern Europe, where the country they occupied has, like its motherland, always borne the simple title of Sachsen. In company with Angles and Jutes from Holstein and Denmark, some of them advanced further still over the stormy ocean, and, conquering and blending with the Kumri, formed the great English, or British, race.

A most curious fact will end my tale. The Israelites (as they call themselves) or Jews (as, in my view, we miscall them) who for centuries past have dwelt in Russia and Poland, have always spoken not the Russian or the Polish tongue among themselves, but an old form of German mingled with a little Hebrew which is now known as Yiddish (that is Judisch, its German name, pronounced as most common Germans pronounce it). Why is this, except that the Israelites who were living in the cities of the Medes* to which Assyrian power had once banished them, migrated in the wake of the Ashkenazim across the plains of Russia into their present abode?

* II Kings xvii, 6.

DISCUSSION.

A MEMBER asked the lecturer how he accounted for the name Teuton, and whether it would be dealt with in his next paper ?

MR. ROUSE.—I do not know ; I will try to find out. In the next paper I will deal with the other descendants of the sons of Noah. The name Teuton was given by the Romans to a tribe of Germans, not to the whole race. The origin of the name Germania is probably Gomerania, the land of the Gomeri, who were its first inhabitants.

COLONEL ALVES.—I should like to ask a question. The Saxon race is a fair race, it is fair-haired, and there is this characteristic about it—that it is amenable to self-government. Now apparently the Celtic race do not seem to be good at self-government ; perhaps that may be a detail ; but also as a rule they are a smaller race than the Saxons—and dark-haired. The Welsh, for instance, are a small race, dark complexioned, living in a cool climate without a strong sun ; there is nothing to darken the skin, they live side by side with the Saxon races. How is it if these are all descended from the same son of Noah, how is it that you have a fair-haired race and also a smaller, fiery, dark-haired race ? These differences cause me to doubt that the Saxons were descended from Askenaz.

MR. ROUSE.—With regard to what the last speaker has said, I should say that if he carried out that argument to its legitimate conclusion, all the people in the world should be either fair-haired or dark-haired, since all descended from a common father, Noah. But why the descendants of two brothers who have kept apart or who should get apart for many, many ages should not have developed certain characteristics peculiar to each family I cannot tell.

Again, Colonel Alves said to us that the Celtic race were smaller. That is true of the Welsh and of many of the Bretons ; but if you go to the Irish and Scotch you find very tall men indeed : the inland men are very tall, fine fellows, and the Highlanders are the finest men on this side of those famous Caucasians. The Highlanders are about as fine a race as you can find in the world, and they are

mainly Celts.* But in the first place people who live in pent-up mountains tend rather to be smaller as a rule. The Swiss mountaineers are not at all large people, nor are the Tyrolese and Piedmontese.

Colonel ALVES.—The Teuton race is generally rather stolid: you will find this characteristic in the North of Ireland, and amongst the Norwegians, and so are the lowland Scotch; on the other hand, the more dark-haired races are of fiery temperament.

Mr. PILKINGTON.—I would like to make one remark of interest about this very subject. I attended some years ago a lecture by Professor Wilson in Scotland, who was the first to introduce the notion of our Israelitish origin. Some Jews got up with the idea of confuting his arguments, and one of them took the same point spoken of; but he showed that Leah was dark and Rachel was as fair as any fair woman in England. Another Jew who tried to confront Professor Wilson asked him, How do you make out it is possible that we English can be descended from the Israelites when the prophet says, "The people shall dwell alone and not be numbered amongst the nations"? The apt reply of Professor Wilson's was, "Who can count the dust of Jacob?" I wish to say this paper is a very interesting one. I had no idea such an interesting paper would be produced. It just shows what a wonderful book the Bible is, and if only people would uphold it how wide is its testimony to meet every aspect of life.

I greatly value this Society; I have never regretted coming into it. In respect of the difficulties of this paper and of those likely to follow, I think there will be much room for study.

Professor ORCHARD.—We cannot separate without expressing our thanks—our hearty thanks—to the learned and erudite author of this paper, who has taken us on a tour through many countries and ages and has shown us what I may call almost a photographic view of the principal philological and historical features of Gomer, his sons, and Thogarmah. The more our knowledge increases the more we find difficulties connected with the Bible to vanish. It has been so with the history of the Creation. Only the other day I met an acquaintance, a Professor, who mentioned that there was an

* Some of the clans are not Celts, as, for example, the Gordons.—E. H.

inaccuracy in the 10th chapter of Genesis. Further knowledge will no doubt come to him and readjust his opinion on that point.

The CHAIRMAN.—We have only again to thank the author for bringing this important subject before the Institute.

Mr. ROUSE.—I value your esteemed praise exceedingly. I do not know any other Society in England whose esteem and praise I value more.

ORDINARY GENERAL MEETING.*

LIEUT.-GENERAL SIR H. L. GEARY, K.C.B., V.P., IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed.

ELECTION :—Sidney Collett, Esq., 191, Belsize Road, was elected Associate.

The following paper was then read by Rev. Canon GIRDLESTONE, in the absence of the Author :—

*THE BEARING OF RECENT ORIENTAL DISCOVERIES
ON OLD TESTAMENT HISTORY. Being the second in
order of merit of the "Gunning Prize Essays." By Rev.
ANDREW CRAIG ROBINSON, M.A.*

THE most serious assaults that are made in the present day on the genuine character of the Old Testament proceed for the most part from the camp of the Higher Critics, whose theories seem to the present writer inconsistent with the view that the Old Testament is an honest history of the people of Israel—not to say a record inspired by the Spirit of God.

Eminent archæologists—Professor Sayce and others—emphatically declare that recent Oriental discoveries entirely discredit the critical theories. Professor Sayce writes in one of his latest works—*Monument Facts and Higher Critical Fancies* (1904)—as follows :—

"The answer of archæology to the theories of modern *criticism* is complete; the Law preceded the prophets, and did not follow them." p. 83.

And

"In the *critical* theory of the Biblical narrative archæology thus compels us to see only a Philological mirage." p. 53. (The italics are mine.)

* Monday, March 5th, 1906.

Dr. Driver, on the other hand, had written in the latest edition (1897) of his *Introduction to the Literature of the Old Testament* :—

“The attempt to refute the conclusions of criticism by means of archaeology has signally failed.” Preface, p. xviii.

In the following essay the bearing of recent oriental discoveries on certain specially controverted points will be more particularly discussed.

THE CUNEIFORM SYSTEM OF WRITING.

The cuneiform system of writing, discovered and interpreted in recent times, goes back, as is well known, to a period of remote antiquity ; to a period, in fact, more than 4,000 years before the Christian era. It was employed by the Babylonians, Assyrians, Persians, and other nations of Western Asia ; and there is good reason to believe that it was used for many centuries in Canaan. Throughout these countries it seems to have formed a common medium of intercourse.

But after having thus endured for many thousand years as a common medium for the intercourse of men—a thing most passing strange occurred. Suddenly—following on the conquest of the Persian empire by Alexander in 333 B.C.—the knowledge of the cuneiform characters, of which this system of writing was composed, seems in the most mysterious fashion—without warning—neglected—unnoticed—to have simply passed away—fading completely from the minds of men—as utterly forgotten as if it never had been known.

In a memoir communicated to the Royal Asiatic Society in 1846 by Major Rawlinson—as he was then—the famous decipherer of the great Behistun Inscription of Darius, Rawlinson remarks that the Persian cuneiform character was no doubt currently understood at the period of the Greek invasion, but there is no monument that can be assigned to a later date than Artaxerxes Ochus. “It may be inferred, therefore”—he went on to say—“that the Persian cuneiform writing expired with the rule of the Achaemenian kings, and that the knowledge even of the character was altogether lost before the restoration of Magism by Ardisher the son of Babek.” *Journal of the Royal Asiatic Society* (1846), vol. x, part 1, p. 51.

No doubt the spread throughout Western Asia of Greek ideas following on the conquests of Alexander may be said to have been the immediate cause of this strange mysterious, fading

away of all knowledge of a form of writing which had prevailed throughout so many ages. Yet it does seem strange that the learned of that time should have allowed a script, in which were enshrined so many priceless historical records, and so many literary treasures of Western Asia, to die out of all knowledge of men. But so it was. And may we not in all this feel that there was something of the avenging hand of Almighty God, who not only caused to be reduced to ruinous heaps the proud cities of Nineveh and Babylon, which had crushed and carried away His chosen people into captivity, but also caused the very script, in which in the days of pride and splendour their kings had inscribed their boastful vauntings, to be buried in oblivion from the memory of men.

The cuneiform system of writing, which thus faded out of the knowledge of the world, remained in its mysterious sleep for nearly 2,000 years. It is unnecessary to enter here into the well-known story of how, by the ingenuity, learning, and labours of Grotefend, and many others—but above all, of Rawlinson—the secret of the cuneiform was discovered—the great enigma solved—and a forgotten world restored once more to the domain of history. Simultaneously, too, with the secret of the cuneiform, the mystery of the hieroglyphics of Egypt was revealed, and thus there was disclosed the ancient history of Egypt's glorious days, and all the high and immemorial civilisation of that strange land.

From both these sources wonderful light has been shed on Old Testament history.

THE CONNECTION OF ISRAEL WITH BABYLONIA IN THE EARLY TIMES.

Abraham.

The Old Testament in simple fashion narrates how the patriarch Abraham lived originally in Babylonia, in Ur of the Chaldees—identified with the present Mugheir—and from thence in obedience, as it would seem, to a Divine call, removed with his father to Haran. His original residence in Ur of the Chaldees is simply mentioned as a fact, no particular point being made of it one way or another; and if he had happened to be born in Haran his call and setting forth at the command of God to wander in the promised land of Canaan would have had just the same significance. The critics appear for some reason anxious to make out that any early connection which the

Israelites may have had with Mesopotamia was not with Ur of the Chaldees; yet it is hard to imagine what motive there could be for making the place of Abraham's birth Ur of the Chaldees, unless in point of fact in Ur of the Chaldees he was born.

A very considerable number of the critics, however, deny that Abraham was a real person at all: they hold, or assert, that his life as we have it in the Old Testament is an imaginative fiction of later times, an edifying story composed to reflect back and embody in the concrete person of an individual the religious ideas of a later age. Thus Wellhausen says of Abraham, that we may not regard him

"as an historical person; he might with more likelihood be regarded as a free creation of unconscious art." *Prolegomena*, p. 320.

This is more or less the general attitude of the critics. Dr. Driver indeed seems to allow that there may have been *some* historical basis for the narratives of the patriarchs. He writes:—

"It is highly probable that the critics who doubt the presence of any historical basis for the narratives of the patriarchs are ultra-sceptical." *Authority and Archaeology*, p. 150.

Now since Wellhausen believes that Abraham was the fictitious creation of a later time, it seems to have puzzled him to conceive why he should be represented as having belonged originally to Babylonia:—

"What the reasons were for making Babylon Abraham's point of departure we need not now consider." *Prolegomena*, p. 313."

But like so many of the rest of the critics he does not believe that Ur Casdim belongs to the original form of the tradition.

It is no wonder that Wellhausen should be at a loss to explain

"what the reasons were for making Babylon Abraham's point of departure;"

for on the supposition that the story of the life of Abraham was an *artificial* one, what reason could there be for making it start in Babylonia? why, from such a point of view, should the early chapters of Genesis be clad, as it were, in a "Babylonish garment"? There seems to be no other reasonable explanation of why the narrative of Abraham's life begins in Babylonia but one, and that is, that his history is a *real* one, and that, in point of fact, it *was* from Babylonia that Abraham came.

His very name Abram seems to have come from Babylonia. No other Hebrew is recorded in the Bible as having borne that name, but in a tablet of the reign of Abil-Sin, the fourth king

of the dynasty of Babylon (about 1950 B.C., the period of Abraham) the name occurs in the form *Abe-ramu*. Also, at a much later period, in the Assyrian Eponym canon, the name *Ab-ramu* or *Abu-ramu* = "honoured father," is found as that of an official who gave his name to the year 677 B.C. And not only does the name of Abram himself thus occur as we have seen in Babylonia in a tablet written at about the time in which his life is placed, but the names of his grandson and great-grandson are also found amongst the West Semitic names in Babylon at about the same period. *Ya'kub* = Jacob, with its longer form *Ya'kub-ili* = Jacob-el; *Sar-ilu* probably = Prince of God and the same as Israel; *Ya'sup* = Joseph, and its longer form *Ya'sup-ili* = Joseph-el.

Would a writer in the later times, composing an artificial history of the founders of the Hebrew nation, be likely to go for their illustrious names to alien Babylon?

THE INCIDENT OF SARAI AND HAGAR.

There is one very curious point which has only just come to light, which constitutes a very striking piece of evidence for the genuine character of the narrative in Genesis in which Abraham is represented as having come from Babylonia. The incident related in the 16th of Genesis where Sarai, because she has no children, gives her Egyptian maid, Hagar, to Abram as his wife, has always, perhaps, appeared to our minds a strange and unnatural thing for Sarai to have done. Yet it was repeated by Rachel, who, because she had no children, gave her maid Bilhah to Jacob as his concubine, and by Leah, who because she considered she had not enough of children, gave Jacob her maid Zilpah. And then after that we have no instance in the Old Testament of any other wife doing the same thing.

This circumstance, then, stamps the narrative in Genesis with a peculiar mark which differentiates it from the succeeding portion of the Old Testament. What is the meaning of Sarai, Rachel and Leah acting as they did? The answer is that what they did was a *Babylonian custom*. Sarai was married in Ur of the Chaldees, in the very heart of Babylonia; and Rachel and Leah came from Haran in Mesopotamia, a place steeped in Babylonian customs and ideas. Dr. Pinches in the first edition of his work, *The Old Testament in the Light of the Historical Records of Assyria and Babylonia*, in discussing certain Babylonian marriage agreements made in a case in

which a man was taking two wives, one of whom was to hold an inferior position to the other, wrote as follows:—

“In the matter of Sarai, Abraham’s wife, giving her handmaid Hagar to Abraham as a second, or inferior wife, because she had no children herself, it is not improbable that we have a record of what was a common custom at the time.” p. 236. (The italics are mine.)

The first edition of Dr. Pinches’ book came out in 1902, and in January of that very year that wonderful document of the days of Amraphel, King of Shinar, known as the Code of King Hammurabi was discovered; it was published in the autumn of the same year. And the surmise of Dr. Pinches that what Sarai, Rachel and Leah are recorded to have done “was a common custom of the time” was shown to be perfectly correct. When the second edition of his work came out in 1903 Dr. Pinches was able in the appendix to publish the text of the Code of Hammurabi, that great king who reigned over Babylonia in the days of Abraham.

And the Code contains the following enactments:—

(144.) “If a man has married a wife, and *that wife has given a maid-servant to her husband*, etc.

(146.) “If a man has married a wife and she has given a maid-servant to her husband, and (the maid-servant) has borne children, (if) afterwards that maid-servant make herself equal with her mistress as she has borne children, her mistress shall not sell her for silver; she shall place a mark upon her, and count her with the maid-servants.”

“has given a maid-servant to her husband.” (The Code.)

“Sarai . . . took Hagar her maid and gave her to her husband Abraham to be his wife.” (Genesis.)

What a close parallel!

And again,

“afterwards that maid-servant make herself equal with her mistress as she has borne children.” (The Code.)

“and when she saw that she had conceived her mistress was despised in her eyes.” (Genesis.)

In his notes on these enactments Dr. Pinches writes,

“Reference has already been made . . . to the contracts of the period of Hammurabi’s Dynasty, which illustrate the matter of Sarah giving Hagar to Abraham because she herself was childless (Gen. xvi, 1, 2). That this was the custom in Babylonia is now confirmed by law 144.” (*Op. cit.*, p. 524.

He goes on to say:—

"Hagar despising her mistress (Gen. xvi, 4) is illustrated by law 146, which allows the mistress to reduce her to the position of a slave again, which was agreed to by the patriarch, the result being that Hagar fled."

One has been sometimes inclined to feel that Abraham acted rather unkindly by Hagar when he said to Sarai, after her maid had despised her, "Behold, thy maid is in thine hand, do to her as it pleaseth thee," but we can see now that he was only conceding to Sarai what was her absolute right by Babylonian law, under this section of the code of Hammurabi.

But when on a later occasion at the feast when Isaac was weaned Sarah saw Ishmael mocking, and demanded that the bond-woman and her son should be cast out, Abraham would seem to have demurred, and naturally so: for Ishmael was then, no doubt, a fine young lad, Abraham's first-born son, and we read, "the thing was very grievous in Abraham's sight because of his son." Nevertheless in obedience to the command of God he sent Hagar and Ishmael away.

The curious light thrown on this incident in the history of Abraham by these two enactments of the code of Hammurabi, from which it is evident that every step in the proceedings was ruled by Babylonian custom and law, would seem to be powerful evidence of the genuine character of the history. What legend-spinner of the later age—in which this custom seems to have been unknown in Israel—would think of fettering his free conceptions by musty codes of Babylonian law?

GENESIS XIV.

The names of the four kings.

In connection with the Babylonian tone of the early chapters of Genesis the fourteenth chapter is of very great interest and importance. Shining as it were through the whole incident of Hagar which we have been considering, we seem to see the consciousness which Abraham had of the code of Hammurabi; but in the fourteenth chapter he seems to come almost into personal contact with King Hammurabi—Amraphel—himself.

Before the archaeological discoveries of recent years this most remarkable chapter of Genesis, with its stately names of ancient kings, and all its simple antique narrative, stood quite alone, and unsupported by any evidence outside the Bible.

But in recent years the four kings from Mesopotamia have been identified, with more or less certainty, with kings whose

names have been deciphered in the cuneiform inscriptions. Amraphel, King of Shinar (the Bible name for Babylonia), has been identified with the well-known Hammurabi, one of the most notable rulers of Babylonia, who reigned for the lengthened period of forty-three years, and put an end to the dominant power of Elam. He is described in one of his inscriptions as King of Martu or the West-land, meaning in the language of the cuneiform records, Syria, Phœnicia, and Palestine. Arioch, King of Ellasar, was long ago identified by the late Mr. George Smith with Eri-Aku, King of Larsa, Nippur, and Ur. Of these two kings, Dr. Pinches writes:—

“The identification of Eri-Aku with the Arioch of Genesis xiv, and Hammurabi, or Ammurapi, with the Amraphel of the same book, can hardly admit of a doubt.” *Op. cit.*, p. 218.

The third king, Chedorlaomer, king of Elam, is identified with great probability with Kudur-lahgumal, styled in an inscription king of the land of Elam, who at one time invaded Babylonia, plundered its cities and temples, and exercised sovereignty in Babylonia itself. Tidal, king of nations—of Goyim, the Revised Version translates it—is with probability identified with Tudhula or Tidal, son of Gazza, mentioned in the same inscriptions. Goyim is supposed to be the same as Gutium—corresponding to the eastern part of Kurdistan.

Opinions of various Critics.

From what has been revealed by the cuneiform inscriptions in reference to these kings, it would appear that those critics who denied their historical character were a little too hasty in their scepticism. Dr. Driver, indeed, in a contribution of his to a comparatively recent work, *Authority and Archaeology*, in which he vigorously strives to minimise the bearing of these identifications of the kings on the general veracity of the narrative, goes on to state:—

“The historical character of the four kings themselves has never been seriously questioned.” *Authority and Archaeology* (1899), p. 45.

It seems very difficult to understand how Dr. Driver could make this statement in face of the opinions which were openly expressed as to the historical—or, rather, the unhistorical—character of the four Mesopotamian kings by well-known critics writing some years ago.

Hitzig, for instance, professor of theology in Heidelberg, writing in 1869, expressed the brilliant idea that the expedition of Chedorlaomer was merely an adumbration thrown back

into past times of the expedition of Sennacherib (2 Kings xviii, 13), *each* being an expedition of an *Eastern* king to *put down a revolt* undertaken in a *fourteenth* year. This fourteenth chapter of Genesis was, according to his idea, composed from the *fourteenth year of Hezekiah*. *Geschichte des Volkes Israel* (Leipzig, 1869), p. 45.

Strange that Dr. Driver should have written as he did in *The Guardian*, March 11th, 1896:—

"The difficulties which some Critics have found in Gen. xiv, consist not in the names mentioned in v, 1, *which no critic so far as I am aware, has ever insisted are unhistorical*." (The italics are mine.)

Especially as the passage in Hitzig is referred to by Dillmann in his discussion of this very chapter. Dillmann, *Genesis* (1897), vol. ii, p. 32, note.

Nöldeke,* writing in the same year, was incredulous as to an Elamite king having any such far-fetched dominion. The events related could just as well have happened in the year 4000 as 2000: the relater avoided intentionally the name of the familiar rulers of the world, the Assyrians; he sought above all for remote names and regions. The names of the kings might have been actually furnished to him, though in quite another connection. But however that might be, at the most we might assume that he had begun with a few true names intermingled with false or artificial ones, but by the pretence of authenticity contained in this, Nöldeke said, he was as little deceived as by the proper names and dates in the Book of Esther.

Such was the tone in which these critics wrote in the year 1869. And Wellhausen writing 20 years later—in 1889—fully endorsed the view of Nöldeke, and was equally sceptical as to the historical character of these four kings. He says—

"Nöldeke's criticism (of Gen. xiv) remains unshaken and unanswerable; that four kings from the Persian Gulf should 'in the time of Abraham' have made an incursion into the Sinaitic Peninsula; that they should have attacked five kinglets on the Dead Sea littoral, and have carried them off prisoners . . . all these incidents are *sheer impossibilities* which gain nothing in credibility from the fact that they are placed in a world which had passed away." *Die composition des Hexateuchs*, pp. 310, 312. (The italics are mine.)

Zimmern, on the other hand, candidly confesses that earlier views held on the subject must be given up. He writes—

* *Untersuchungen zur Kritik des Alten Testaments* (1869), pp. 159, 160.

"In opposition to earlier views on the subject, it must be admitted that the situation presupposed in Gen. xiv—a campaign of an Elamite King with other princes in his train to Palestine as well as the prominent part taken . . . by Jerusalem and its king is, according to the knowledge we now possess regarding the earliest Palestine thoroughly historical and intelligible."—*Der Theologische Rundschau*, May, 1898.

We have seen that Wellhausen emphatically denounced all the circumstances of this narrative from beginning to end as "sheer impossibilities." Other critics, in face of these identifications of the kings, have felt themselves obliged to try to find some different way out of the dilemma.

As Professor Hommel says—

"They were obliged—since there seemed no other way out of the difficulty—to fall back again on the theory of a post-exilic forgery, and to suggest that, like a nineteenth century novelist in search of 'local colour,' the Jewish writer must have gone to the Babylonish priests for his antiquarian details."

And he then quotes a passage to this effect from the 1st volume of Meyer's *History of Antiquity* (Stuttgart, 1884). *Ancient Hebrew Tradition*, pp. 161, 162.

Cornill (*Einführung in das Alte Testament*, 1892, p. 73) writes in almost exactly the same style as Meyer. He calls the imaginary post-exilic Jew, who is conceived to have been the author of the fourteenth chapter of Genesis, "*ein literarisch interessierter Jude*," a literary designing Jew; and using even stronger language than Meyer, declares the chapter to have been dovetailed into the already concluded Pentateuch—a late addition in the style of Midrash and Chronicles, whose tendency in the episode of Melchizedek shows clear as day. To quote once more from Hommel—

"That the history of Abraham, whom they (the critics) regard as not merely a legendary, but rather a purely mythical being, should contain in its midst an ancient historical tradition was something which they could not accept; for in that case the whole theory according to which everything before the time of David is wrapped in the midst of legend would begin to totter on its base, and the account drawn up by Moses would begin to appear in another and far more authentic light. . . . In order therefore to save this master principle from ruin there was nothing for it but to adopt the above opportunist expedient, the inherent absurdity of which must, one would think, be patent to every unprejudiced observer." (*Op. cit.*, pp. 162, 163.

We see then the remarkable testimony to the truth of the general situation pre-supposed by Genesis xiv, which has been afforded by the cuneiform inscriptions, and we see also the desperate and opportunist expedients, expedients which beg the whole question, to which the critics have been obliged to resort in struggling to escape from the inference as to the genuine character of the entire narrative, which naturally results from that testimony.

Dr. Driver, however, has strongly asserted that—

“the bearing of the facts related about them (the four kings) in the inscriptions on the credibility of the narrative following is *nil*.”

That is to say, no doubt, that the rest of the incidents stand in exactly the same position in regard to credibility as they did before any evidence had been brought to bear upon the chapter from the cuneiform inscriptions. But such a statement as this would seem to be quite unreasonable. In ordinary cases where a witness whose evidence may have been doubted has been unexpectedly confirmed in a most important and leading point of his evidence by an entirely independent witness, whose testimony is practically conclusive on such a point, a strong inference is naturally raised that the evidence of the first witness on other points is also likely to be reliable. Such inference, of course, is not the same thing as if actual confirmatory evidence on all points were forthcoming, but still such an inference is usually held to be reasonable, and we may claim that in this particular case of the fourteenth chapter of Genesis it is fairly and very strongly raised.

The episode of Melchizedek, King of Salem (or Jerusalem) is considered by critics like Cornill to be one of the most undoubted marks of the late post-exilic composition of the chapter. And yet in view of the position which Jerusalem occupied as early as 1400 B.C. as testified by the Tel-el-Amarna tablets (in which it is described as a “capital” city) there would seem to be nothing more natural than that, in the midst of any important political events occurring in Southern Palestine, the King of Jerusalem should appear on the scene. The suspicion then with which the critics regard the introduction of the King of Jerusalem into the history, would seem to be uncalled for, and in the episode of Melchizedek the general situation presupposed in the fourteenth chapter of Genesis would appear once more to be in close accord with the political conditions indicated by the monuments.

Uru-Salem the Cuneiform Name of Jerusalem.

With regard to the name "Salem," it seems now to be practically agreed that it must undoubtedly be taken to mean Jerusalem. The name "Shalam" for Jerusalem occurs in the list of cities in Palestine which were captured in the reign of Rameses II. The names may still be read on the wall of the Ramesseum at Thebes; and the name "Salem" also occurs in a similar list of cities captured by Rameses III.

There is nothing, then, in the name Salem itself which would suggest a late date, but, on the contrary, the name would rather point to those ancient times when the cuneiform script of Babylonia prevailed in Palestine. The name Jerusalem in cuneiform writing is "Uru-Salem"—"Uru" meaning "city," and "Salem" "peace." "Salem" would seem a natural abbreviation from Uru-Salem, by the omission of the first element, city, and the retention of Salem, the distinctive proper name. Indeed, this whole narrative may possibly have once existed in the form of a record in cuneiform writing. We know that through centuries before Abraham the Babylonians were at various times the over-lords of Palestine, and we know from the Tel-el-Amarna tablets that in spite of the paramount influence which the Egyptians exercised in Palestine about 1400 B.C. as suzerain power, the hold which the cuneiform writing had on the people of Palestine was so strong and persistent that even official correspondence with Egypt was carried on by the writing and language of Babylonia. There is, therefore, we may claim, nothing unreasonable in the suggestion of Professor Hommel that possibly this fourteenth chapter of Genesis, which is in such close accord with the ancient history of Babylonia, and enshrines within it this peculiar name for the holy city (which seems an echo of "Uru-Salem") may have existed once in the form of a cuneiform record.

THE BABYLONIAN CREATION TABLETS.

The critics give themselves a great deal of trouble in their endeavours to satisfy themselves as to the exact time when the Creation and Flood legends of the Babylonians became known in Israel. Their sceptical theories in regard to the patriarchs preclude them from adopting the simple idea that since, according to the Old Testament, Abraham came from Babylonia, he would naturally be acquainted with these stories, and his descendants, although not living in Babylonia, would be aware of them.

through him, and by reason of the powerful influence of Babylonian ideas prevailing in Palestine, and felt in Egypt also in the centuries preceding the Mosaic age. There is no need to trouble ourselves about the time of the conquest of Canaan, or the reign of King Ahaz, or the age of the exile, as the time when the people of Israel first became acquainted with these stories. It is enough if we believe that the great ancestor of the nation came from Babylonia—he and his descendants would naturally be familiar with all these things.

It would seem then that it is probably safe to assume that the writer of the sublime account of creation, which forms the poem of Genesis, was fully cognizant of the Babylonian story. On this the question next occurs—in what relation does this account in Genesis stand to that contained in the Babylonian Tablets?

To this question the answer given by Professor Sayce is, that the Biblical account deliberately contradicts the Babylonian.

After noticing the points of resemblance between the two accounts, Professor Sayce declares that between the Babylonian and the Biblical narratives there is a profound difference, a difference which indicates not only the priority of the Babylonian version, but also the deliberate purpose of the Hebrew writer to contravene and correct it. He writes:—

“The polytheism and mythology of the Babylonian theory are met with a stern negative; along with the materialism of the preface to the epic.” *Monument Facts and Higher Critical Fancies*, p. 106.

This preface to the epic Professor Sayce translates:—

“In the beginning was the deep which begat the heavens and the earth, the chaos of Tiamat who was the mother of them all.”

Against this materialism of the Babylonian account, which represents a formless matter, independent of the Creator, generating itself, developing into the divine, and producing as by spontaneous generation the heavens and the earth, there stands, says Professor Sayce,

“on the forefront of Genesis the declaration that, ‘In the beginning GOD created the heavens and the earth.’ The earth was indeed a formless chaos resting on the dark waters of the primæval deep;—thus far the conceptions of the Babylonian cosmology are adopted;—but the chaos and the deep were not the first of things; God was already there, and His breath or spirit brooded over the abyss—while the letter of the Babylonian story has been followed the spirit of it has been changed. The Hebrew writer must have had the Babylonian version before him and

intentionally given an uncompromising denial to all in it that impugned the omnipotence and unity of God." p. 108.

Dr. Pinches sums up his discussion of the question as follows :—

"In the mind of the present writer there seems to be but one answer, and that is, that the two accounts are practically distinct, and are the production of people having entirely different ideas upon the subject, though they may have influenced each other in regard to certain points." *Op. cit.*, p. 48.

Professor Hommel's opinion, as expressed in *Ancient Hebrew Tradition*, seems to be different. He seems to think that there was a monotheistic Babylonian version more ancient than the polytheistic—of which the latter was a corruption. This would seem in some degree to harmonise in general principle with the opinion of Delitzsch, that there were amongst "the immigrant North Semitic tribes religious ideas differing from the indigenous polytheistic mode of thought in Babylonia," but which "quickly succumbed before the polytheism" of the older inhabitants. *Babel und Bibel, Trans. by Johns* (1903), pp. 72, 133.

THE BABYLONIAN FLOOD TABLET.

Its Place in Babylonian Literature.

In Babylonian literature the story of the Flood occurs as one of the episodes in the epic of the Chaldean hero, Gilgames, and is contained on the eleventh tablet of a series of twelve, which recount what is known as the Legend of Gilgames. The hero goes on a journey to visit Pir Napištim (the Chaldean Noah), who for his goodness had been gifted with immortality, in order that he might find out from him the secret of how to become immortal. In reply to his questionings, Pir Napištim relates to Gilgames the story of the Deluge.

Its Bearing on the Hexateuchal Criticism.

That story as told in the Babylonian legend bears a striking resemblance in the incidents which it embraces to the Biblical narrative, although differing from it in the widest possible way in its theological aspect. Whilst the Babylonian narrative is grossly polytheistic, the Biblical breathes the purest monotheism. Nevertheless there is a remarkable similarity between the two in the incidents which they record, and the Babylonian story has a curiously important bearing on the critical analysis of Genesis and of the Pentateuch in general.

Professor Bissel, as long ago as 1892, in a work of his, *Genesis in Colours* (p. xiii), drew attention to the fact that the Babylonian narrative contained in a united form the various incidents which the critics in the case of the narrative in Genesis distribute between the two supposed writers, the Elohist and the Yahvist. Professor Sayce in his work, *Early History of the Hebrews* (1897) pressed the same point and repeated it in a later book, *The Religions of Ancient Egypt and Babylonia* (1902), p. 444. The fact is that the effect of this Babylonian Deluge Tablet is to place the critical analysis of the Flood story in Genesis between the hammer and the anvil; between the *hammer* of the combined account in the Babylonian tablet and the *anvil* of the combined account in Genesis.

The critics have analysed the Biblical account of the Deluge into two documents which, originally separate and independent, they hold to have been intertwined. There is the priestly writer P, who uses the Divine name Elohim and takes pleasure in formal phrases, precise chronological statements and records of genealogies, and to him certain incidents in the Flood narrative are attributed. And then there is the imaginative writer J, who uses the Divine title Yahveh, and whose narrative is striking and picturesque; and to him certain other incidents are attributed. These two writers are held to be quite independent of each other, and to write from completely opposite points of view.

But to trouble all this specious theory comes this incontestable record from ancient Babylonia, and it shows that all these incidents—formal or picturesque—supposed to be each so characteristic as to denote different writers in the Pentateuch, and so diverse from one another as to indicate distinct and independent points of view, existed as a matter of fact in a state of absolute union in a document as ancient as the times of Abraham.

If the formal and the picturesque could dwell amicably together in the *Babylonian* narrative—what warrant is there for inventing a formal writer and a picturesque for the narrative in *Genesis*?

In the light, then, of the Babylonian Flood tablet, the theory which we are expected by the critics to accept appears to be supremely unreasonable. We are to believe that first came the fully-developed story of the Flood in the Babylonian Deluge tablet. Then followed deterioration by scission, or splitting, one-half of the story being separated by the Elohist writer P, and the other half carried off by the Yahvist; and then the

story was re-developed by the uniting of the two parts—the two documents—in the Biblical narrative in Genesis.

The story ONE in 2000 B.C.—then divided—then united—ONE again in Genesis as it had been before.

Is it reasonable of the critics to expect all this to be believed?

It is a remarkable circumstance that Dr. Driver seems never to have attempted to answer this attack made on the Hexateuchal criticism by Professors Sayce and Bissel.

In *Authority and Archaeology*, a book published in 1899, to which Dr. Driver contributed an essay on "Hebrew Authority," he would seem to have had an excellent opportunity of opposing the conclusions of these two writers, because the connection between the account of the Deluge given in Genesis, as compared with the Babylonian Flood story, was one of the points discussed in his essay. In a footnote on another point connected with the Flood he refers to Professor Sayce's book, *Early History of the Hebrews*, showing that he must of course have been well aware of the conclusions put forward in that book. Nevertheless, in his essay, the critical point is evaded in the following words:—

"It would have been interesting to point out in detail in what respects each of these versions resembled in turn the Babylonian narrative; but for our present purpose *the question of the distinction of sources in the Biblical account is unimportant.*" p. 27 note. (The italics are mine.)

It seems strange that Dr. Driver should write thus in presence of the direct attack which Professor Sayce had made on the Hexateuchal criticism in connection with this very point, and especially as Dr. Driver's essay on "Hebrew Authority" was in part highly controversial, and, indeed, resolved itself towards the close into an elaborate defence of the criticism against the attacks of certain archaeologists, amongst whom Professor Sayce came in for particular attention. Yet this direct and simple point, which Sayce pressed against the criticism in connection with the distinction of sources, was evaded in the words which I have just quoted. It was utterly ignored and left unanswered. Perhaps there was no answer conveniently to be found.

There is no part of the Pentateuch perhaps where the theory of the distinction of sources has been held by the critics to be more certainly assured than in this account of the Flood in Genesis; and the distinction of sources here is closely and indissolubly bound up with the critical analysis of the

rest of the "Hexateuch." If grave doubt is thrown by the stubborn evidence of the monuments on the reality of the critical analysis in this case, *the whole Hexateuchal theory is assailed and is intimately and vitally concerned.*

THE LITERARY CONDITIONS OF THE MOSAIC AGE.

We have seen how the analysis of the Flood story in Genesis by the critics has shown their theories to be in direct antagonism to the evidence of archæology. The evidence of archæology goes to show that the story of the Flood is *one*—the theory of the critics is that it is "*a doublet*"—and we have seen how far-reaching is the significance of this antagonism, affecting as it does the reality of the whole Hexateuchal criticism.

Let us now consider another case—which is also of far-reaching consequences—in which once more the theories of the critics are in direct antagonism to the evidence of archæology.

Dr. Driver, in the latest edition of his *Introduction to the Literature of the Old Testament*, takes occasion to remark that the assertion not unfrequently made that the primary basis of Pentateuchal criticism is the assumption that Moses was unacquainted with the art of writing, and that this had been overthrown by the Tel-el-Amarna tablets, rests (so he says) on an entire misrepresentation of the facts. That Moses was unacquainted with the art of writing, he says, is *not* the premiss upon which the criticism rests, and the antiquity of writing was known long before the Tel-el-Amarna tablets were discovered. p. 158.

It is not, however, the crude fact as to whether Moses could or could not write that is in question; the critics may be taken as admitting that he could. The point in question is that the barbarous state from a literary point of view, which the critical theories bring out as the condition of the Israelites in the Mosaic age, is in direct opposition to what archæology in the present day shows to have been the condition of Egypt and Western Asia at that time.

Opinions of the Critics.

As to what the views of the critics are in regard to the literary condition of Israel in the Mosaic age we can judge by the following:—

Wellhausen writes :—

“But it was within this period 850–750 B.C. that Hebrew literature first flourished—after the Syrians had been finally repulsed it would seem. Writing of course had been practised from a much earlier period, but only in formal instruments, mainly upon stone. At an early period also the historical sense of the people developed itself . . . in songs, which in the first instance were handed down by word of mouth only. Literature began with the collection and writing down of these songs.” *Sketch of the History of Israel and Judah* (1891), p. 71.

In the same strain Dr. Driver writes :—

“No doubt in Israel, as in many other nations, literature began with poetry. . . . At what date they ‘(the songs)’ were formed into a collection must remain matter of conjecture, the age of David or Solomon has been conjectured. . . . The terminus *a quo* of J. E.” he writes, ‘is more difficult to fix. . . . We can only argue from our view of the progress of the art of writing . . . or of the probability that they would be written down before the impulse given to culture under the monarchy had taken effect.” *Introd.*, pp. 121, 122, 124.

Thus crudely do the critics ignore the literary environment of the Israelites in Egypt, so amply revealed by archaeology, and elect to start the literary history of the people from zero. And yet of course in Egypt in those days—as had been so from immemorial time—writing was in most general use for all the common purposes of life. The “tale of bricks” would no doubt be given to the task-masters of the Israelites in writing; the temple walls were inscribed with sculptured records; and literary culture, and elaborate ritual, surrounded the Israelites on every side.

Did the leaders of the Israelites when they crossed the Red Sea instantly forget all the culture and learning of the land of Egypt which they had just left, so that neither Moses nor any other among them rose to any literary effort beyond the most primitive and rude? “Writing mainly upon stone,” is the most that Wellhausen would admit :—songs handed down “by word of mouth only,” is all that he would allow even to times long after Moses; whilst what Dr. Driver thinks of literature in Israel in the Mosaic age may be fairly gauged by the passage already quoted, where in discussing the date of “J E” he talks of the probability that songs would have been written down *before the impulse given to culture under the monarchy had taken effect.*

When therefore Dr. Driver urges the point that an assumption that Moses was unacquainted with the art of writing is not a premiss upon which the criticism of the Pentateuch depends he is only leading away from the real point raised by archæology. That point is, that the conclusion of the critics that the Israelites in the age of Moses had no literature worthy of the name is irreconcilable with the teaching of archæology as to the literary condition of Egypt and Western Asia in that age.

And here it may further be remarked, that although this denial of any literature to Israel in the Mosaic age may not be a premiss upon which the critical theories rest, but rather a conclusion—*nevertheless*—such a conclusion—if *once it be accepted*—works round in a vicious circle of argument to help the criticism. For if it be accepted as true that such literary barrenness existed at that time, then the early history of Israel becomes as it were a *tabula rasa*, on which the critics may inscribe whatever theories their imagination may lead them to conceive, unchecked by the wholesome restraint which the admission of the existence of contemporary documents would impose upon them; and further, under such circumstances, they consider they are entitled to treat all writings in the Bible concerned with the Mosaic period as merely a collection of myths and legends, handed down by oral tradition, around which again their critical imagination is left free to play; and so even the most far-fetched speculations—in the dimness and uncertainty of mere oral tradition held to prevail—are emboldened to put forward a claim to recognition.

Archæology, which strikes at the historical probability of this literary barrenness of Israel in the Mosaic age, strikes at the same time at one of the buttresses at least, if not one of the foundations of the Higher Criticism.

This then is the point, which though long before known, was emphasized by the discovery of the Tel-el-Amarna tablets, namely—the yawning chasm that separates the conclusions of the critics from the state of things indicated by archæology. It is *not* that the critics said Moses *could not write*—and the discoveries of archæology revealed *that he could*—*but that* the conclusions of the critical theories deny to Israel in the age of Moses any literature worthy of the name, whilst the condition of things revealed by archæology would seem to show that in order to reconcile such a conclusion with that condition, we should have to suppose that the leaders of the Israelites, during their sojourn in Egypt, must have stolidly resisted the most ordinary influences of the every-day life around them.

Professor Sayce observes :—

"From one end of the civilised ancient world to the other men and women were reading, and writing, and corresponding with one another; schools abounded, and great libraries were formed."

"Moses not only could have written the Pentateuch but it would have been little short of a miracle had he not been a scribe." *Op. cit.*, p. 42.

THE CODE OF HAMMURABI.

Description of the Code.

In point of fact the whole spirit of the criticism, which seems perpetually dominated by the thought that all the religion and culture of Israel only truly blossomed in the later times, is completely opposed to the trend of archaeological discovery of the present day. The whole tendency of that course of discovery is to more and more unfold to view the fact of the great antiquity to which the culture and social institutions of mankind reach back. This contrast between the tendency of thought among the critics in regard to the history of Israel and the course of the revelations of archaeology may be aptly exemplified by the case of the Code of Hammurabi. This, the most recent and wonderful discovery in the field of Assyriology, was made in January, 1902, among the ruins of Susa—"Shushan the palace," as it is called in the Book of Daniel, "which is in the province of Elam." Excavations carried on there under M. de Morgan brought to light the three fragments, which had composed an enormous block of polished black marble, covered with cuneiform inscriptions. At what had been the top of the monument a low relief was carved representing the great King Hammurabi himself standing before the Sun-god, from whom he is receiving the laws of his kingdom. When the cuneiform characters on the marble had been copied and read it was found that a priceless treasure had been unearthed—a complete code of laws, the earliest ever discovered in the world, "earlier than that of Moses by eight hundred years, and constituting the foundation of the laws promulgated and obeyed throughout Western Asia."

The Code of Hammurabi has strong affinities to the Mosaic Code, and several points of contact with it. "An eye for an eye," "a tooth for a tooth," is a drastic principle of law, which holds in either code. There are other similarities, too, but the

differences are also very great. One most important distinction between the two is this: that the Code of Hammurabi seems to presuppose a commercial people, highly organised, and with all the complicated family and trade relations belonging to such a community; whilst the Mosaic Code seems to be intended for a people living under much more simple conditions.

Dr. Pinches notices another important point which he says shows "the two codes to have been compiled from totally different stand-points; and that is that the laws in the Code of Hammurabi are purely civil, whilst into the law of Moses all kinds of provisions for the poor, the fatherless, and the necessitous, have entered. "From this point of view," he goes on to say, "Moses' Code is immeasurably superior to that of the Babylonian law-giver, and can hardly on that account be compared with it" (*op. cit.*, 2nd Ed., Appendix, p. 519).

The fact that a kindred people like the Babylonians possessed a written code of laws through so many centuries affords strong presumptive evidence in favour of the belief that the people of Israel had also a written code of laws during their national existence—as their own national tradition and consciousness most assuredly held that they had.

"For the law was given by Moses,"

says the writer of St. John's Gospel.

And this presumptive evidence is all the stronger owing to the undeniable resemblance which in many points exists between the Mosaic Code and that of Hammurabi. That it was only at a late period in their national existence that the Israelites received the code of laws which was to regulate the life of the nation is a theory which at any time was most improbable; but seems now still more incredible since the discovery of this most ancient code of laws existing among the kindred Semites of Babylonia.

This section of the subject may be closed with the words of Professor Sayce, which appear to be amply justified.

"While the Mosaic Code in contradistinction to the Babylonian Code belongs to the desert rather than to the City, the *laus implied in the narrative of the Book of Genesis* are those which actually were current in Canaan in the *patriarchal age*. No writer of a post-Mosaic date could have imagined or invented them; like the names preserved in Genesis, they characterise the patriarchal period and no other. The answer of archaeology to the theories of modern 'criticism' is complete: *the Law preceded the Prophets*, and did not follow them." *Monument Facts and Higher Critical Fancies*, p. 83.

THE ASSYRIANS IN CONTACT WITH ISRAEL.

Testimony to the Veracity of the Biblical Historians.

The points at which the Assyrians came into touch with Israel are intensely interesting, but do not raise as a rule any highly controversial questions. They simply show wherever the Assyrians touch Israel that the story contained in the Historical Books of the Old Testament is a real, genuine, honest history which—unlike the boastful records of the Assyrian monarchs—places on record defeats as well as victories—national humiliation as well as the nation's triumphs. It is all very well for Dr. Driver to say—as he does—that

“No one for instance has ever doubted that there were kings of Israel (or Judah) named Ahab, and Jehu, and Pekah, and Ahaz, and Hezekiah; or that Tiglath-Pileser, and Sennacherib, led expeditions into Palestine—the mention of these (and such like) persons and events in the Assyrian annals has brought to light many additional facts about them, which it is an extreme satisfaction to know, but it has only ‘confirmed’ what no critic has questioned.”

Perhaps so—and perhaps not; the point need not now detain us. But whether any critic did, or did not, question these things, they questioned *this*—the *boni fides* of the compilers of these Historical Books. These writers—so the critics say—worked them over to give them a particular character, which was not the true one that they ought to bear. It is important, then, to note that when these writers can be tested as to veracity by these Assyrian monuments, they come well out of the test.

Conception of the Character of the Assyrians by the Classical Writers.

It is a curious point what an erroneous view the classical writers of antiquity seem to have conceived of the Assyrian character. To them ‘Assyrian’ seems to have meant everything voluptuous and effeminate. But the Biblical writers knew them better.

“Where is the dwelling of the lions, and the feeding-place of the young lions; where the lion, even the old lion, walked, and the lion's whelp, and none made them afraid? The lion did tear in pieces enough for his whelps, and strangled for his lionesses; and filled his holes with prey, and his dens with ravin.”

So wrote the prophet Nahum about Nineveh. And most assuredly the Assyrian inscriptions show that Nineveh was a veritable lion's den—so fierce—so cruel—so ruthless—were her people.

CONCLUSION.

But time and space forbid adducing any further instances. From those discussed the writer hopes that he has made it clear that the bearing of recent oriental discoveries on Old Testament History is antagonistic to the critical theories, while they support the historical accuracy of the text.

DISCUSSION.

Rev. G. F. WHIDBORNE.—Mr. Chairman, I think we must be very grateful for such a striking and valuable paper. One or two points I might speak of.

The writer mentions Ur of the Chaldees as being proof—against the Critics—that Abraham is an historical person. I think that argument can be carried a little further still. Let us assume, with the Critics, that J. did not originate till the ninth century and P. not till Ezekiel's time, and that, before that, the account of Abraham only came from oral tradition, as Dr. Driver says. (Genesis, p. xvi). In those times Babylon seems at first hardly to have been known to the Israelites, and then it developed into a hostile nation, and finally into a cruel conqueror. Let us recollect the pride and exclusiveness of the Israelites, increasing through the monarchies. It is evidently absurd to imagine that a mere oral tradition would have preserved the then distasteful fact that the great national hero and progenitor was of Babylonish origin, or that a compiler of documents would have incorporated it in his compilation. The only reasonable explanation, on critical lines, of the mention of Ur of the Chaldees as the native country of the great national progenitor, must be that it was contained in an authoritative written history before Israel was a settled nation. In fact, it witnesses not only that Abraham was an historical person but that the account of him in Genesis was ancient written history.

I think that the paper suggests to us even more. We may find a presumption, at least, that Abraham not only lived, but himself wrote. We know that in his day written contracts of purchases were usual. The account of the purchase of the field of Machpelah is acknowledged to have followed generally the customs of the age. Now in the account itself we read how money is paid and then in verses 17 and 18 the chapter gives this remarkable clause: "And the field of Ephron, which was in Machpelah, which was before Mamre, the field, and the cave which was therein, and all the trees that were in the field, that were in all the borders round about, were made sure unto Abraham for a possession in the presence of the children of Heth." I should like to ask if we could have a more distinct indication of the "making sure" by a written purchase-contract than in these words with their legal phraseology. It seems the strongest evidence that Abraham had to do with a written document and was accustomed to things written.

Remembering this, we turn to our author's claim, that there is nothing unreasonable in Hommel's suggestion "that Gen. xiv may have existed once in the form of a cuneiform record." The Critics, like Dr. Driver, regard it as a distinct document, "SS." Let us grant this: the question remains, Can any special reason be alleged for the existence of such a document? The circumstances suggest a striking one. Abraham knew the character of the King of Sodom. He had done him a great service for Lot's sake, who was to remain on an inhabitant of his city. To safeguard him, he had been careful to give no excuse for the King of Sodom's greed. It becomes at once clear how essential a written memorial of the transaction would be, especially one which brought in the King of Salem as Umpire.

If, then, Gen. xiv is to be explained as a separate document, the most rational explanation would be that for this special purpose it was written by, or by the direction of, Abraham himself. If Abraham wrote it, Moses would naturally possess it, and use it.

It may, by the way, be noted that the Critics' assertion of an editor or compiler at once destroys any argument against age from phraseology; because the first business of any editor would naturally be to modernise archaic phraseology; even a transcriber might, for instance, instinctively change Laish into Dan.

The CHAIRMAN.—We have a letter of regret from Dr. Pinches, stating that unfortunately other duties prevent his being here. We should have gratefully valued his presence.

Canon GIRDLESTONE.—With regard to Mr. Whidborne's last sentence, there are a great many linguistic peculiarities in the Book of Genesis which the latter writings have not removed. There are odd spellings and idioms which only occur in the Book of Genesis. The linguistic side of the treatment of the subject has been severely neglected. In the days of David, who was a poet and a warrior, new musical instruments are introduced, new ways of marching, etc., and therefore I feel sure that from every point of view it can be shown that the books are, as they stand, in their true order.

Mr. DAVID HOWARD, F.C.S.—This paper has interested me exceedingly. I am no critic and no theologian, though I confess these studies have a great fascination to me. But as one who has certainly had to make scientific evidence a great deal of study and has had experience of evidence in other matters, the Higher Criticism always seems to be deficient in one thing: there is no extraneous confirmation of its conclusion. I have looked with the deepest interest for the time when some extraneous evidence would be brought to bear, and I might say with a little anxiety, to see how it would turn out. The extraneous evidence which has been brought out in such abundance of late years has all been in favour of the absolute authenticity of the Old Testament. In fact, light thrown by many discoveries tends to confirm the veracity of the Old Testament, and in certain cases enabling us to understand what was very perplexing, as, for instance, Sarah and those maid-servant wives. How can one imagine that such an idea as that—a purely Babylonish idea—could be woven into a forgery centuries after: as it was truly remarked, at the time that Israel was absolutely hostile to Babylon? The whole question of the origin of legends is a very fascinating one, and there is always the conceivable possibility that they are true, and so it is nothing very amazing that some sort of legend of the Flood should have survived from the very time itself, and it is most interesting to find a history dating back before Moses containing such a tradition. It is very remarkable to notice the absolute courage with which the writer of the first chapters of Genesis, evidently knowing what the tradition was of other nations, puts a construction upon these facts in that

clear definite form he gives ; totally differing from that of the nations around.

Mr. M. L. ROUSE said, in delivering a short reply illustrative of the fallacy of the Higher Criticism, I have been led to examine Dr. Driver's introduction. I notice there, in other words besides those here quoted, that he virtually abandons the theory of two documents, the Yahvist and the Elohist. He twice says that the criteria are uncertain, and that he finds the difference at points hard to trace throughout.

On the other hand, there has recently been published an edition of volumes of the Old Testament writers as analysed by the Higher Critics : and I have looked at the one of Genesis (edited by a Mr. Bennett), and I was very much struck with this very great piece of dishonesty. Granting that the accounts were double, of course every section that begins with Elohim should belong to one story and every section that begins with Yahveh should belong to the other story. Now in one of the Yahvist sections—both preceded and followed by the name Yahveh—it is said that “after seven days” Yahveh would “bring a flood upon the earth.” In an Elohist paragraph—both preceded and followed by the name Elohim—it says that “after the seven days the waters of the flood were upon the earth.” Thus pointedly does the Yahvist account confirm the Elohist ; but the Critics have picked out this one sentence and called it Yahvist.

Since the discovery of the Tel-el-Amarna tablets, a batch of letters has been discovered in the North of Canaan referring to every-day incidents, not necessarily to wars, plots or treaties, just showing how common this writing was ; so common that Sheikhs wrote to one another about the every-day matters of living—their purchases, the welfare of their households, and what not.

Again, a few years ago Dr. Glaser explored into the heart of Arabia, and found records of three dynasties of kings, each preceding the other before the time of Solomon ; a dynasty of priest kings, a dynasty of ordinary Sabeen kings, and further back a dynasty of Minyan kings ; and this long line of at least thirty-five kings have left inscriptions of their respective reigns—all written in a character akin to Hebrew, as also in a language related to Hebrew. Thus, not only can Moses have written in the cuneiform character, but there was a Hebrew character already existing for a form of the Hebrew tongue.

I should like to add to what is here said regarding Hammurabi, that his name appears somewhat later as Ammurapi—which brings it very near to Amraphel ; and, further, I would say that Hammurabi describes himself as lord of the Amorites ; just as Kudur Mabuq, the father of Kudur Lagnal, or Chedorlaomer, king of Elam, whom Hammurabi overcame, had previously, as we find, called himself king of the Amorites.

It has been the fashion of late to style the laws of Moses less original or more cruel than the laws of Hammurabi, with an insinuation that they were less just ; but you will find that, whereas Moses' law throughout says, "An eye for an eye and a tooth for a tooth," in the Babylonian law it was, "An eye for an eye and a tooth for a tooth" only when one injured a rich man. Again, whereas, according to Moses, a thief when he was breaking into a house might be killed and his blood was not to be upon the killer ; according to Hammurabi, if he were caught breaking into his house, the thief was to be killed and buried at the spot where he broke in.

There are many other points in which the excellency of the laws of Moses might be shown.

Professor ORCHARD.—I wish to express my thanks to the author of this paper for a most valuable and timely contribution to one of the most important discussions of our age. I think we shall agree with the conclusion arrived at (on p. 172), that it is absurd to suppose that the Israelites were not influenced by the culture and literature of those Egyptians amongst whom for such a very long period they had resided.

With regard to the Creation story and the Flood story, the idea that the Babylonian version is a Divine record is preposterous. If we are offered one version simple and pure and another complicated with strange, grotesque accretions, one cannot doubt which was the earlier in point of time. Moreover, we are very well aware that monotheism has been proved to be the primitive belief, and not polytheism. The idea that the Creation story was borrowed from the Babylonians would probably never have been seriously put forward had it not been that many people imagine that there was nothing in the Bible written before the time of Moses. That, of course, is an untenable assumption. The probability is that Adam himself wrote the Creation story under Divine guidance, that Noah

wrote the history of the Flood similarly; and no doubt Moses edited the book to which reference is made, when God tells him to write in "*the book*" the fact that The Lord would have perpetual warfare with Amalek because of his wickedness. There can be no doubt that from the very beginning of human history there was a Divine record.

I was very much struck with the remark by the Chairman that these Higher Critics' conclusions which are here exposed and refuted, that these theories are mere pictures of the imagination. The ablest representative of the Higher Critics is probably Dr. Driver, and Dr. Driver seems to have the idea that if you can prove they are credible on some points, other points are not important. It is a most absurd proposition. Dr. Driver prefers, and his Higher Critics prefer, to paint pictures of the imagination, rather than investigate facts; and if the pictures do not agree with the facts, then, of course, that shows that we are in some way or other unacquainted with the facts. Professor Sayce's description of the critical theory as "a philological mirage" appears to be apposite. The Higher Critics profess to investigate facts and reasons in support of the pictures of imagination which they present to their readers, but they do nothing whatever to allay the thirst of the human spirit for truth and reality. If I may correct a quotation from Dr. Driver by the author, I would say, the attempt to refute the conclusions of archæology by means of Higher Criticism has signally failed.

The CHAIRMAN.—I propose a vote of thanks to the author of this paper—which the Secretary will forward to him—for his most interesting paper and the valuable discussion.

The SECRETARY.—I second the motion. It will give me the greatest pleasure to convey the thanks of the Institute to the author of this paper.

ORDINARY GENERAL MEETING.*

LIEUT.-GENERAL SIR H. L. GEARY, K.C.B., IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed.

The following elections were announced :—

ASSOCIATES :— Colonel G. J. van Someren, Kensington ; Rev. J. Thompson Phipps, Wandsworth.

The following paper was then read by the author :—

THE EARLY CELTIC CHURCHES OF BRITAIN AND IRELAND (with illustration).† By Miss ELEANOR H. HULL, author of *Early Christian Ireland*, etc. With lantern illustrations.

IT seems not inappropriate on the morrow after St. Patrick's Day to turn our thoughts to the origins and history of the Church in which he played an important part; and out of the dimness of whose traditions his figure stands out in such prominence that the first name that occurs to our minds when we turn them toward that, to most of us, "dark backward and abysm of time," is that of "The Apostle of Ireland." The, to my mind, even greater names of St. Columba, St. Finnian, St. Gildas, St. David, St. Cadoc, St. Kentigern, St. Asaph, St. Cuthbert, St. Aidan, St. Chad, St. Columbanus, have slipped almost from out our memories, but for some reason, that of St. Patrick, however ignorant we may be of his actual life and work, abides there still. It is partly with the desire of tracing and explaining this curious circumstance that I propose to take up the subject of the origin and development of the Celtic Church to-day.

It is usual to date the introduction of Christianity into Britain from the landing of St. Augustine, the Roman bishop sent by Gregory bishop of Rome to the Anglo-Saxons in A.D. 597. I would like to point out at the beginning of my paper that all

* Monday, March 19th, 1906.

† Frontispiece.

we have here to say of Christianity in Britain occurred (with the exception of part of the foreign missions) before that date. You will, I think, agree with me that Augustine came to no heathen country, but to one that had been not only long Christianised itself, but which was making efforts to Christianise the neighbouring peoples. The mission of Augustine was strictly to the Saxons and Angles, who were pagan, but there lay behind the settlements of these newcomers in the east and south a large native population which was, at the period of his advent, almost wholly Christian.

There is nothing more difficult, nothing that requires more virile intellectual energy and resolution, than to look straight in the face any historical question which effects, or seems to effect, our own personal position and views. There could be no better example of this than the very curious and suggestive divergence of opinion regarding the character and connections of the Celtic Church. Presbyterian writers, looking chiefly to the fact that St. Columba was not a bishop but a presbyter-abbot, have held firmly to the belief that the Presbyterian form of Church government was that which held good in the Churches of Scotland and Ireland in the sixth and seventh centuries: the Protestant Church of Ireland, fixing its eyes chiefly upon the undoubted reverence for and spread of the Scriptures (we should be more correct to say of the Gospels, for no copy of the Bible has come down to us from early Ireland, and only one copy of the whole New Testament) in the Columban Monasteries, has held itself to be the lineal descendant and true representative of the ancient Church. Roman Catholic writers, ignoring the peculiar organisation of the native communities, and minimising the growth and development in Church doctrine and in the position of the Bishops of Rome, have pointed triumphantly to the Church of St. Patrick as a true Roman Church in all the modern sense of that term. All three alike, in order to defend their special positions, have read backwards into the age of the fall of the Roman Empire ideas and antipathies that had no existence at that early period, but belong to times much nearer to our own.

Still, the very existence of such an extraordinary diversity of opinion is interesting, and it is calculated to send us back to the original documents and to the general history of the Western Church to try and find out what are the exact data on which we have to build. We shall find, I think, that each party has possessed itself of a certain share of truth, but has held to it by the rigorous exclusion of other considerations

equally important in forming a just conclusion. The materials bearing upon the history of the British Church are alas ! not so copious as we could wish ; the devastations of the Saxons swept away alike a great part of the written memorials of the times before their advent as well as of the churches and monasteries themselves over a large part of England. But in Ireland, and in the Irish monasteries abroad, a mass of ecclesiastical manuscripts remain, and though the majority of these are of a later age, written or altered after the formal union of the Celtic with the Roman Church at the close of the seventh and beginning of the eighth centuries, there is sufficient unaltered matter to enable us to discern pretty clearly the thoughts and observances of an earlier time.

I think I ought to say in starting that the outline that I wish to put before you to-day is not entirely in accordance with any of the views enumerated above ; it is my own opinion, and I do not want to do more than to suggest it for your consideration ; but it has pleased me to find that such impartial and original thinkers as Professor Bury, in his recent *Life of St. Patrick*, and Mr. Hugh Williams, in his studies on the Welsh Church and especially on the works of Gildas, have, in their own special departments of the study, arrived at something like the same conclusions as those to which I have myself come.

Omitting through lack of space the interesting and beautiful Native Roman and Biblical traditions which connect the earliest converts with Joseph of Arimathea and Glastonbury, with St. Paul, with the father of Caractacus and other personages, we pass at once to the better defined and more reliable ground of historic fact.

The earliest authentic notice which comes to us is from the pen of Tertullian, writing about 208 A.D. He says: "In all parts of Spain, among the various nations of Gaul, in districts of Britain inaccessible to the Romans but subdued to Christ, in all these the kingdom and name of Christ are venerated." (*Adv. Jud.* vii.) At the moment that Tertullian was penning these words the Britons and Caledonians were revolting from the Emperor Severus in that district of Northern Britain which he had endeavoured to protect and preserve to Rome by the erection of a rampart across the island, and it is not unnatural to suppose that in speaking of those districts of Britain "inaccessible to the Roman arms" he was thinking not of the southern and more settled portions of the country which, according to this supposition, were already Christian, but of those wild districts which we now call the Highlands and Wales, which the Roman armies

had never subdued. As far north as York, where Severus died, the country had Roman cities and organisation, and we may suppose some knowledge of Christianity.

A hundred years later came Diocletian's persecution*(303 A.D.). St. Alban, the proto-martyr of Britain, who was one of the few who seems to have suffered in these islands, was a native of the Roman city of Caerleon-on-Usk, and died at the place now known by his name. If the story of his death is a true one and not invented to give honour to an almost martyrless Christian community, a thing regarded in early days as being a stain upon their faith, he and his companions, Julius and Aaron, were evidently not native Britons but Roman citizens. This is sufficiently evident from their names.

Under the mild rule of Constantius and his son Constantine it is hardly likely that any serious persecution extended itself to Britain. Indeed a story is told both by Sozomen and Eusebius to the effect that Constantius, when the decree of persecution was ordered, called before him his officers and bade them consider whether they would abandon Christianity and retain his favour, or keep their faith and be banished from his presence. Those who, after reflection, decided to sacrifice to the pagan deities were, however, the men dismissed by him, for he declared that those who had been worthy servants of their God would also be faithful to their Emperor (Quoted by Bishop Brown, *The Church before Augustine*, p. 56.) The interest of this story lies in the fact that the larger number of Constantius' officers appear to have been, nominally at least, Christians: and, though he himself never embraced the Christian faith, his son, Constantine (Emperor 302-337), is universally admitted to have received his Christianity in Britain, though he was not, as we know, baptized until immediately before his death (Sozomen, *Eccles. Hist.*, ii, ch. 34; Soerates, i, ch. 39).

But we can go a step further.

By the date of the Council of Arles in 314, we find existing an organised Christian British Church with regularly appointed bishops presiding over it. Three bishops from Britain were present at this Council and signed the decrees along with the thirty other bishops gathered from Italy, Africa and Gaul. They were respectively Bishops of York, London, and what is understood to be Caerleon-on-Usk.

* The persecution of Diocletian hardly extended itself to Britain, which was cut off from the Roman empire by the usurpation of Carausius and Allectus, and came later under the mild rule of Constantius.

That there were bishops from Britain at Nicæa in 325 cannot be tested by actual observation on account of the incoherent condition of the records of that important Council; but at the Council of Sardica in 347 we have the testimony of St. Athanasius that they were present and joined him against the Arians. Thirty-three bishops from the Gallie (*i.e.*, the Roman province of Gaul and Britain) were present.

At the Council of Rimini (359), one of those numerous Councils at which the Nicæan Creed underwent alteration after its acceptance at Nicæa, it is stated that four hundred Bishops of the Western Church were assembled. The Emperor, in courteous consideration of the immense journeys which many of these Bishops had been forced to take to attend the Council, and of the great expenses entailed in taking these frequent official flights across Europe, ordered that all should be entertained at his own expense. There is a pleasant sense of independence in the reply of the Bishops from Aquitania, Gaul and Britain. They said that they "deemed it unbecoming to be entertained out of the Imperial bounty and preferred to live at their own expense": three only, through special circumstances of poverty, accepting the offer of the Emperor.

I will not further multiply proofs of the widespread and firm hold of Christianity in Britain in the fourth and fifth centuries. Origen, Chrysostom and Jerome attest it and the Councils of Gaul, at nearly all of which Bishops from Britain were present, prove it. The baptism of Maximus in 381, before his assault upon the Empire, show that to be a Christian was accounted in Britain, and in the Roman army, a mark of distinction and an omen of success: the rise and spread of Pelagianism in this country early in the fifth century shows an advanced condition of theological speculation. Neither in their interest in the Arian controversy, nor in the originating of controversies among themselves, does this section of the Church show itself behind the general course of ecclesiastical thought. To them, as well as, or more than others, does Hilary of Poitiers appeal when an attempt has to be made afresh to still the persistency of the Arian adherents in the middle of the fourth century. They responded to the appeal; for the orthodoxy of the Church in Britain up to the time of Pelagius was not only unquestioned, but was commented upon with special favour by a series of the chief Fathers of the Church.

Now the point to which I wish to direct attention is that during all these three or more centuries of Church development, native Britain, so far as we know, has in it little or no part. The

names of the leaders, where we can casually discern them, are Roman names, the episcopal cities are Roman cities, the questions that move the Church are not the principles of discipline or life of a native community, they are the questions that were being fought out in the East, in Italy, in Africa, or in Roman Gaul. Welsh tradition knows nothing of these martyrs, these bishops, and these Synods. They did not touch her life or win her adherence. When Origen says, that among the Britons "very many have not as yet heard the word of the Gospel," he may well have been including almost the entire native population.

The Welsh genealogies of the native saints do not go back further than about the beginning of the sixth century, and up to that time no native Church on native lines and appealing to the general mass of the population seems to have come into existence.

That there were converts, perhaps numerous converts, among the native population, I do not for a moment deny; the British quarter of the town lay beside or just beyond the Roman quarter, as a rule; the people intermingled in the army, in commerce, by intermarriage, and in the daily intercourse of life. Many of the people must have adopted the religion of their conquerors. Pelagius himself was probably a Briton who hid his native name of Morgan under the more lofty-sounding Romanised form that it might sound better in the ears of his superiors, as many a good Gaelic or Brythonic name has been turned into an Anglicised or Biblical form since his day to avoid the satire of the Englishman.

But these individual adhesions do not prove any sort of national tendency. The Latin language, in which all ecclesiastical worship was conducted and all religion taught, would in itself have formed a boundary which the mass of the population would have found it almost impossible to pass, except in cities where the Gael and Brython mixed constantly with the Roman settlers.

The more I consider this question, the more convinced I feel that the birth of the Celtic Church was not as yet; that the Church of these fourth-century Bishops and Councils can in no real sense be looked upon as the British Church, but only as the Roman Church in Britain, using here the word Roman in its political and geographical sense as the Church of a people rather than in its later and special sense as the Church of a creed.

As the Roman cities of Arles, Lyons, and Trèves sent their bishops to the various Church Councils to represent, not the

native inhabitants of Gaul or Germany but the Roman adherents of Christianity in these cities, so Roman Britain took a dignified share in the general life of the Church.

But by all this the people were untouched ; it lay apart from their whole system of ideas, their life and thought : the Church organization, with its recognised sees, its external ties, its foreign language, and its system of thought and ritual based, as we can hardly doubt, upon the Roman model, had no appeal for the native Celtic population, and we cannot imagine that the extension of its borders passed much beyond the towns. If there was ever to be a native Church in Britain it must be a Church based upon some other system of development and more in accordance with the habits and tendencies of native life.

That such a Church, in fact, arose from the very bosom of the people themselves I hope to show you, but the distinction between the system of the one and the system of the other was clearly marked.

Of the personalities who actually moved and moulded and impressed their spirit upon this early Brito-Roman Church we do not know so much as we should wish ; yet four names isolate themselves from the mass of obscure personalities, and of three out of the four we are able to judge of their character and ideas from their own writings, while of the fourth all we know is from a single phrase in Bede. The names are St. Ninian or Ninias, Fastidius, Pelagius, and Patrick. Let me say a couple of words about these four men. Of the first, the Venerable Bede tells us in introducing St. Columba to his readers, that

"the Southern Picts, who dwell on the southern side of the mountains (*i.e.*, the Grampians) had long before St. Columba's time, as was reported, forsaken the errors of idolatry and embraced the truth by the preaching of Ninias, a most reverend bishop and holy man of the British nation, who had been regularly instructed in Rome in the faith and mysteries of the truth, and whose episcopal see, named after St. Martin the bishop and famous for a stately church, is still in existence."—(*Eccle. Hist.*, Book III, ch. 4.)

This is absolutely all that we know from English sources about St. Ninian ; there are many later lives of him, but they are merely ingenious expansions after the approved fashion in vogue with the mediæval hagiologist of these words of Bede. But the Irish hold fast to the tradition that Ninian was half an Irishman ; that he was born of an Irish mother and that part of his education was gained in Ireland. There he is called in the loving Celtic fashion *Mo-nenn* or "my Ninian," as the name of

St. Laissen, the founder of Devenish Abbey on L. Erne, is changed to Molaissi, or St. Aedh or Aedan to Modoc, or the Welsh St. Cadoc to Docus, or in Scotland St. Kentigern's name, the patron Saint of Glasgow, was changed to St. Mungo, meaning "my dear friend." This tradition is interesting as bearing on the question of the existence of Christians in Ireland before St. Patrick, and we shall see that another out of the four persons of whose origin and life we have some details is also said, and this time not by the Irish themselves, to have been an Irishman.

The second name is that of Fastidius.

Now it is astonishing to me that the name of Fastidius is, even among persons interested in such matters, so utterly unknown. For from Fastidius we get the first living voice of the Christian Church in Britain; the first writings which give us an insight into the thoughts and life of a Christian teacher living in this country in the fourth or early fifth century. And apart from all this, one out of the two tracts preserved to us by Fastidius is in itself a piece of writing of the inspiration of which any Church might be proud. We know little of Fastidius except that Gennadius of Marseilles, who about 480 A.D. made a sort of biographical dictionary of the lives of well-known Christian persons, living or dead, tells us that he was a British bishop and that he had written one book entitled *De Vita Christiana*.* This tract Fastidius wrote to a Christian widow lady named Fatalis, whom he calls "dilectissima soror." He compares his tract to "country-bread, better for the hungry than that of fine flour." We feel that it is so indeed. The learned have sought for traces of Pelagianism beneath its simple words; but to most of us the strange attraction of this tract will lie in the fact that while the Church without was spending its strength and weakening its powers of affection on subtle questions about Free-will and Predestination, which still as we look back catch and hold our gaze as though the very existence of Christianity depended on their solution, here on our own soil a simple bishop, otherwise unknown to us, was pouring out his mind on the actual details of the true life of a Christian. It is not a small thing that at the opening of its course the Church of this country should be found to lay stress not on dogmas of the mind or even on discipline of the body-corporate, but on the spirit of the Christian life.

* Gennadius, *De Illustribus Viris*, ch. 56. The Corbey copy of Gennadius reads only "Fastidius Britto," but all other MSS. read "Episcopus."

Let me read you a couple of extracts from this tract, the heading of whose chapters "On the Christian Life," "On its Dignity and Meaning," "On Sin and the Love of God," "On Almsgiving," "On the True Christian," etc., give an idea of its substance.

"How can you say that you are a Christian, in whom no act of a Christian is seen? For the Christian is he who is upright, good, just, wise, patient, humble, benevolent and innocent; how then will you justify and claim for yourself that title in whom out of so many things not even a few exist? The Christian is he who is such not only in name, but in deed, he who imitates Christ in all things and follows Him, he who is holy, innocent and perfect, in whose breast evil hath no place, in whom piety alone exists with goodness, who knows not how to hurt or injure any man, but brings help to all. A Christian is he who by the example of Christ does not know how to hate his enemies, but rather how to do good to those who oppose him and how to pray for his persecutors and foes. For whosoever prepares himself to hurt or injure his neighbour, he denies that he is a Christian. The Christian is the man who can say with truth, 'No man have I injured; I have lived justly with all men.'"—(From chap. vi.)

"Be innocent, if you wish to live with God; be simple, if you wish to reign with Christ. Of what service to thee is evil, which drags thee down to death; of what gain is wickedness, which hinders thee from reigning with Christ?"—(From chap. x.)

In dealing with the question of Almsgiving, this fifth-century preacher is confronted with a difficulty ever present with us and pressing upon us in modern life, the question of the morality of receiving as a charitable gift, money unlawfully gained or earned only by the misery and degradation of other human beings. The opinion of Fastidius is given without hesitation. Let us hear what he says:—

"Some think they will be justified because they of their substance give a niggard alms to the poor, and of that which they have taken from many they give a very small part to one. One man is fed off that which hath made many hungry, and from the spoils of many, scarce a few are clothed. This sort of almsgiving God asketh not; He desireth not that pity should be shown to one out of the cruelty of another . . . That almsgiving doth God approve which is ministered of lawful toil. For He abhorreth and rejecteth that almsgiving which is offered from other men's tears. For what doth it boot thee, if one man bless thee and many men curse thee? Or what doth almsgiving bring thee which is offered of the substance of another man? Is it verily to be feared that God hath not where-

with to feed His poor, unless thou, to aid Him, plunderest another man's goods?"—(Chap. xii), Migne, *Pat. Lat.* t. 50.

Of Pelagius and his heresy we need not say much here. "The production of a heretic," says Professor George Stokes cynically, "gave the most vigorous and satisfactory of proofs of the interest of the British Church (read 'Church in Britain') in theological questions." (*Ireland and the Celtic Church*, p. 12.)

The wide spread and the attractiveness of this teaching of Pelagius is proved by the two visits of St. Germanus and his companions from Gaul to try and eradicate it. Had Pelagius remained in Britain and written his books in retirement there, perhaps we should have heard little of him or his writings. But Pelagius did not address himself to the Britons; he was a great traveller: we find him in Rome, in Sicily, and in Palestine. It was from Rome, where he lived quietly for many years, that he wrote his works, *On the Trinity*, *On Testimonies*, and *On St. Paul's Epistles*. Had he not prudently retired from Rome during the descent of Alaric and the Goths in 409–410 he would with his own eyes have witnessed the sack of Rome. Pelagius was a student by nature and habit, a thinker who in the quiet of the study worked out theories on the abstruse questions of original sin, of free-will, and of baptism: his teaching was, in the beginning at least, but the over-emphatic reassertion of a forgotten truth, the grave truth of the freedom and responsibility of the human will. Later, when driven into fresh and more explicit statements, his theories took a more controversial form, and he impugned doctrines held to be fundamental in the Church. Two circumstances forced the teaching of Pelagius into a prominence which it would probably have otherwise escaped. The first was his friendship with Cœlestius, an Irishman living in Rome (I would ask you to note the fact of a notable Christian Irishman living in Rome fifty years before the mission of St. Patrick), who with all the ardour of the Celtic temperament, embraced the doctrines of Pelagius and spent his life in their dissemination throughout the Christian world; the second was the fact that in Africa at that very moment the sombre and subtle mind of Augustine of Hippo was formulating these doctrines of predestination and election, to which the teaching of Pelagius was fundamentally opposed. Augustine pursued Pelagius with unrelenting animosity. He sent a friend of his own, Orosius, to watch Pelagius and report his doings to him. When two Synods in Palestine fully acquitted Pelagius, he secured his condemnation in two African Councils at Carthage; when Pope Zosimus was won over by

the representations of Cœlestius, Augustine called in the aid of the civil power and secured an imperial edict from the Emperors Theodosius and Honorius banishing Pelagius from Rome. The heresy of Pelagius, thus curiously tossed about, approved by one Pope, condemned by another—commended by two Synods and reproved by two others, comes down to us at the present day in our Church Prayer-books as the only heresy against which we are warned by name in the Thirty-nine Articles. Against the personal character of the British teacher his worst enemies found themselves unable to cast a stone; the simplicity and purity of his life is attested by his bitterest foes; and he passed the remainder of his days in a seclusion which, we may well believe, was grateful to him after the prominence of theological disputation into which he had been unwillingly forced.

The last of our group of four names is that of St. Patrick. The life of St. Patrick has been torn by controversies, but we possess in his own undoubted writings a record of his life and work which might have settled many of them or at least have provided a firm ground for building upon. In his confession we have, not a life-history, but an outpouring of his spirit as an aged man whose time was nearly over, in defence of the work that he had felt himself called upon to do.

After the sketch we have now given of the condition of affairs in Britain it will not surprise you to learn that St. Patrick was brought up from childhood in the tenets of the Christian religion. His father was a deacon carrying on his ministry, as was generally supposed, somewhere near Dumbarton, but as is now beginning to be thought, in the quite different region of the neighbourhood of the Bristol Channel. His father was a wealthy man, and owned, besides his town house, a farm in the country, to which the young Patrick was no doubt frequently sent for change of air.*

Besides his clerical duties Calpornus held the position of "decurio," or, as we should say, borough councillor under the Roman governor of his province. It was his duty to collect the

* "My father was Calpornus, a deacon, son of Politus, a presbyter, who belonged to the village of Bunnarem Taberniæ. Now he had a small farm hard by, where I was taken captive."—*Confessio*, ch. i.

"I was free born, according to the flesh. I am born of a father who was a decurion, but I sold my noble rank, I blush not to state it, nor am I sorry, for the profit of others."—*Epis. to Corotinus*, ch. x. See Dr. Newport White's "Critical Edition of the Writings of St. Patrick."—*Proc. R. I. Acad.*, vol. xxv, No. 7, 1905.

dues and taxes and forward them to headquarters and generally to attend to the municipal affairs of his district. Such a combination of civil and religious offices appears strange to us to-day, but we learn from the Church history of the time that even bishops were not exempt from such civil duties. We find that at the Synod of Constantinople (A.D. 343) there were a number of bishops present "who were liable to be called upon to occupy various official departments connected both with the city magistracy and in subordination to the presidents and governors of provinces," and that the Emperor, angry at their refusal to sign the creed of the Acacians, used his authority to force them to return to their civil duties from which, under such circumstances, they had exemption.*

I mention this here because it enforces my contention as to the almost purely Roman origin and connection of the Church at this time established in Britain, and it was undoubtedly this same form of Church thought and government that St. Patrick brought to Ireland. He was, as you know, taken captive by Irish marauders while at his father's farm (probably by the great Irish prince, Niall of the Nine Hostages, who was carrying on foreign and home wars at this time), and he was enslaved for many years in the north of Ireland, acting as herd to a heathen master on the mountains of Slemish, co. Antrim. Here he gained one acquirement which proved of inestimable service to him in later days, a knowledge of the Irish or Gaelic tongue, and it is largely to his command of the native language that I ascribe the success of St. Patrick in after times, where his predecessor Palladius, sent shortly before by Pope Celestine to preach to the Irish, failed. It is usually supposed that Patrick was the first Apostle of Ireland and that he came to an entirely heathen country. We have already had proofs that this was not the case. The presence of Celestius at Rome, if not the birth of Ninian and Pelagius, prove that this is an exaggerated estimate of the condition of things, even if we had not the express pronouncement that Palladius was sent by the Bishop of Rome as first bishop to the "Scots believing in Christ." Now it was not usual to consecrate a bishop to any Church not yet established and with some recognised organisation. Augustine of Canterbury was not consecrated until he had established his mission and gained converts. The sending of a bishop already consecrated shows the existence of a Church of some growth and organisation, and this we

* Socrates' *Ecc. Hist.*, Bk. II, ch. 41. See also as to the employment of clergy as judges and lawyers, *ibid.*, Bk. VII, ch. 37.

may believe to have been the case. St. Patrick's own words attest it. He had been, he said, "into remote parts of Ireland where the Word had never before been preached," proving that in most parts it had already been known and accepted. The legends of the saints also go to prove the establishment of some churches and communities at a very early date.

To follow his work or examine his teaching is not our business here. St. Patrick, like the teachers of whom we have already spoken, belonged, in our view, not to the native Celtic Church, but to the Roman Church in these islands. It is not without a purpose that so much attention has been concentrated upon his work and mission, and that the later teachers, St. Columba, St. Finian, and "the hosts of the Saints of Ireland" and Wales have been half-forgotten by their countrymen. Yet to my mind it was they and not St. Patrick who most truly may be said to have established the native Celtic Church.

The establishment by the Apostle of Ireland of fixed episcopal sees at Armagh and elsewhere was the carrying out in Ireland of the system of organisation to which he had been accustomed in Britain; it was totally unlike the native Church system, and it appears to have become extinct on his removal, to be revived, later on, under different circumstances, when a formal reunion with the Roman Church took place in the end of the seventh and beginning of the eighth century.* The distinctive feature of the Celtic Church, its monastic organisation, is not in its native form heard of in his time, and the monks and nuns, "so many past his counting," of whom he speaks, seem not to have been attached to particular centres, but to have been companions of his travels. We hear nothing of abbots, but much of bishops; later, the bishop sinks into a secondary position and the abbot is the centre of the Christian community and the pivot on whom the ecclesiastical organisation revolves. The system from outside that St. Patrick endeavoured to impose upon Ireland was not suited to the then prevailing social and political conditions, and it fell off as an ill-fitting cloak immediately after his withdrawal.

There is, indeed, an ancient Irish Catalogue of Saints which exactly expresses, in a few brief sentences, what I believe to have actually happened.

Dividing the stages of Christian development into three, it tells us that the special feature of the first stage was the

* See Prof. Bury's *Life of St. Patrick*. Appendix on Episcopal Succession in Ireland.

great number of its bishops; the second, the number of its presbyters in comparison of its bishops; the third, the number of its anchorite or hermit monks. The first stage was distinguished also by the unity of its liturgical forms, a natural feature in a Church into which these were adopted from without. The second, by the variety of these forms, which were, it appears, at first derived from the teaching of three Welsh saints, Gildas, Cadoc and David, but which did, as we know, vary in the various monastic foundations, as the rules of each monastery differed from one another; indeed, one special feature of the liturgical forms of Gaul and Ireland consists in the variety of their collects and a certain freedom of detail.*

The extraordinary passion for the anchorite life in its extremest austerity, here spoken of as the third stage, was a feature that impressed upon the native Christianity of these islands an almost Oriental complexion. It did not, so far as we know, come into general favour in the first period, though it was a usual and persistent condition of life throughout the entire course of Irish Celtic Christianity from the sixth century up to the ninth century. Indeed, Irish hermits have survived in isolated spots into quite modern times.

We will now, bearing in mind these general distinctions, inquire what were the special features which we find impressed upon the actual native Church.

Its first and obvious characteristic was the rapid and extraordinary growth of monasteries all over the country. At the

* "First, in the time of Patrick, all were bishops, famous and holy and full of the Holy Ghost; 350 in number, founders of churches. They had one head, Christ; and one chief, Patrick. They observed one mass, one celebration, one tonsure from ear to ear, they rejected not the services and society of women.

"Secondly, Catholic presbyters. In this order were few bishops and many priests (or presbyters), in number 300. They had one head, our Lord; they celebrated different masses and had different rules; one Easter, on the fourteenth morn after the vernal equinox, one tonsure from ear to ear; they refused the services of women, separating them from the monasteries. They received a mass from Bishop David and Docus (i.e., Cadoc) and Gildas, the Britons. . . .

"In the third order of saints were holy presbyters, and a few bishops, 100 in number, who dwelt in desert places and lived on herbs and water and on alms; they shunned private property, despising all earthly things. They had different rules and masses and different tonsures, and different times for observing the Pascal Festival."—Quoted by Ussher, *Works*, vol. vi, p. 477.

date of St. Patrick's death, about A.D. 461, we hear little of native Welsh and Irish foundations either by way of churches or of monasteries, though here and there, generally in the extreme west of Ireland, some anchorite settlers seem to have begun to build themselves huts and to gather a few pupils around them. But less than a century later, the whole country is absolutely covered with ecclesiastical establishments of more or less size and importance, according to the reputation of their founders for sanctity or learning, and we can hardly put our finger on any spot on the map of Wales, Scotland and Ireland or of Devon and Cornwall (the humble relics of Celtic days have, alas! all been swept away from the eastern and central portions of England), without still finding some tiny cell or church, some mouldering wall of an ancient oratory, some solitary cave or place of retreat, or some shaft or crown of a Celtic cross which carries down to this day either by its own name or by that of the farmland upon which it stands, the memory of the early saint who built the cell or taught and worked in the neighbourhood. The extension of the monastic system at this moment was something utterly abnormal, and it cannot be understood unless we have formed in our mind a clear idea of what a Celtic monastic foundation was like.

A monastery in Celtic times was a very different place to a similar institution in our own days. We must put out of our minds altogether the idea of a stone-built establishment capable of holding a large number of persons. For an Irish or British foundation of the sixth or the seventh century there was no need to collect funds or hire stone-masons to lay foundations and draw architectural plans. Nearly all the famous monasteries began in groups of stone or wattled huts in every way similar to those in which the people ordinarily dwelt, each student building his own little cell with his own hands when he had fixed upon the monastic school in which he had determined to pursue his studies. In Wales the usual method was for a saint (and every professed Christian might easily earn for himself a title that was willingly bestowed, without need of Canonical sanction, on any Christian person of distinction) to seek a spot where in solitude he might pursue his religious devotions or perfect himself in piety. He would retire to a sequestered place, and after a fortnight of fasting and prayer would proceed to erect his wattled hut and his primitive oratory, which henceforth became called by his name. In Ireland we do not hear of the previous fixed period of preparation, but the process was otherwise the same. But gradually the belief in the sanctity

of the holy man would spread or he would become known as a teacher or a scribe. His solitude was broken in upon by students who would begin to gather round him. Each student as he came would establish his cell around the central green, or along the sides of the stream or valley in which the anchorite had fixed his home, and gradually immense religious settlements, half educational, half agricultural, and wholly religious, would spring up. They came by degrees to include the entire Christian population, for each central monastery as it grew unwieldy in size sent away offshoots which owned obedience to the chief saint and carried out the same rule of life. Each monastic establishment was self-contained, having its own fields for growing corn and vegetables, its own mills, kitchens, storerooms, and barns. The students and monks did the entire work of the place, sowing, reaping, carrying burdens to the mill, grinding corn and generally performing the duties of the settlement. Even bishops are found ploughing the fields, grinding corn and performing other menial offices. The extreme simplicity of life in these early monasteries must be carefully borne in mind. Part of each day was set apart for the instruction of students, another part for active duties, while the offices of the Church were regularly and minutely attended to. I cannot imagine a system of any kind more suited to the needs and more calculated to elevate a primitive and unlettered people. These institutions set before the entire population a new ideal of simple, industrial life sanctified by religion and enlarged by study.

In Ireland we find the most honoured saints and heads of monasteries, even such men as St. Columba and St. Ciaran, ploughing, reaping, cooking, and even grinding corn at the quern, which was the office of women-slaves. St. Brigit, even after the founding of Kildare, is found milking the cows, herding sheep, churning butter, baking bread, and doing all the ordinary work of a peasant-woman. When St. Columba goes for consecration to Bishop Ethen, he finds him ploughing in the fields; when in his old age he returns to visit Clonmacnois the monks gather hastily from the little grange farms on which they have been working to receive him with honour. Nor did they look on such labours as derogatory: they felt them to be ennobling and elevating: they felt (as it is told of St. Nathalan), "that in the lowly work of cultivating the earth he approached nearest to the Divine contemplation; therefore, though he was of noble blood, he practised with his own hands the lowly art of cultivating the fields." Besides the manual labour and the

ordinary work of a large establishment all time that could be spared from the offices of the Church was given to instruction, reading and writing, and to the making of book-satchels, the covers of books, and ecclesiastical bells and crosses. The industry of some of the great teachers in copying books, chiefly copies of the Psalms and the Gospels, was extraordinary. St. Columba is said to have written 300 books with his own hand, and his life is sown with instances of his industry in this particular. St. Finnian of Clonard is stated to have given a copy of the Gospels to every church he founded.

In the earliest period few, if any, of these copies were illuminated: they were written solely with a view to supplying the needs of the churches and religious foundations all over the country, but two at least of the most beautiful and valuable specimens of Irish manuscript illumination, the Book of Durrow, and the yet more famous Book of Kells, now in T.C.D. Library, come to us from the seventh and eighth centuries, and prove beyond a doubt that the art of illumination had at that early period reached its fullest development. They are, in both cases, copies of the Gospels, belonging respectively to the Columban monasteries of Durrow (Queen's co.) and Kells (co. Meath).

In a country entirely without towns or stone buildings of any kind except what are known as the primitive "bee-hive" huts or cells inhabited alike by primitive pagan and early anchorite on the desolate coasts and islands of the west of Ireland, the monastic settlement, which was surrounded by a wall or "cashel," came to be looked upon as a "city," the name by which it is usually known. When the Northmen came to Ireland the only points of attack that offered themselves, besides a few scattered villages of huts, were the monastic settlements, and it is no doubt to this fact that we owe the repeated destructions of the monasteries so often spoken of during the Norse invasions. There was, in fact, nothing else for them to destroy. A sharp attack, with a few lighted brands flung upon the thatched roof of the oratory, would soon spread to the cells, and the group of tiny huts would quickly be destroyed. The Northmen, securing what booty they could in the way of Church vessels, reliquaries and book-covers, would pass on to another place, leaving the flaming or charred fragments of the monastery behind them. On their return half a year or a year hence they would find the place built up again, the oratories reconstructed and the life going on as before. It is only in this way that we can account for the fact that the Annals relate the destruction of a monastic establishment sometimes

twice, thrice even, in one year. Not a single year passed during the eighth and ninth centuries but that three or four famous foundations and a host of lesser monasteries were burned to the ground; yet we find them, apparently within a few weeks or months, recovered from their fall, and their "families" of monks quietly pursuing their wonted way. When in the ninth or tenth centuries there first dawned upon the mind of some Irish architect of true genius the conception of the Irish Round Tower, which, raising its graceful and impregnable summit beside the tiny church or group of oratories and cells which it was its duty to protect, offered to them in moments of danger not only a refuge for the sacred books and vessels of the Church, but a place of safety to the entire community, the unfortunate monks could watch with comparative freedom from anxiety the course of the depredations proceeding below: could issue out unharmed when all was over, to clear away and re-erect their demolished dwellings and to re-thatch the tiny church or group of churches which lay beneath the shadow of the belfry-tower. "Scattered all over the country these ancient towers stand to-day as they stood in times of foreign incursion, calm, dignified, and picturesque, symbols of safety in the midst of confusion, of peace and confidence in the midst of terror. The little churches at their feet are wasted by the hand of time, the graveyards over-grown; but the Round Tower still holds erect its head, casting over the ancient settlement the same feeling of protective care, the same sense of patient watchfulness that made it, in days gone by, the guardian of the village, the one spot of repose and security." (*Early Christian Ireland*, p. 215.)

A clear grasp of the social conditions which modified and moulded the monastic life of the sixth and seventh centuries seems to me to enable us without any difficulty to understand the peculiarities of Celtic Church organisation. Where there were no towns except the monasteries, no parishes and no regular dioceses, the diocesan system which had been adopted in Britain in Roman times and which St. Patrick naturally desired to pass on to Ireland, fell to pieces of itself; it was wholly unsuited to the needs of the people and to the conditions of the time. Its revival was, so far as I am able to see, part of the general re-organisation of the Church system under Roman supervision in the eighth and ninth centuries. Bishops there were in plenty, but they occupied a different position. They necessarily sank into a subordinate position to the all-powerful Abbot who ruled each large establishment. They became rather adjuncts

to the monastery, for which they performed certain offices, those of ordination and confession or "soul-friendship," as this office was beautifully called in Ireland.

They were not organised under metropolitans, of whose existence we hear first only at a slightly later period, they were attached to monasteries, and out of this rather subordinate position most of the peculiarities attaching to their office and position arose. They followed, like their brethren, the monastic rule of life. This system, which was carried out in all the Celtic monasteries, excited the surprise of Bede, who was accustomed to the division between monks and secular clergy. Speaking of the system in vogue at Lindisfarne, a Northumbrian monastery founded according to the Columban Rule by monks of Iona and Old Melrose and keeping up the method usually preserved among them, Bede says:

"Let no one wonder that though the island of Lindisfarne is small, we have made mention of a bishop, and not of an abbot and monks; for the case is really so. For the same island, inhabited by servants of the Lord, contains both, and all are monks. For Aidan, first bishop of that place, was a monk, and with all his followers lived according to the monastic rule. Wherefore all the principals of that place, from him to the present time, exercise the episcopal office, so that while the monastery is governed by an abbot, whom they, with the consent of the brethren, have elected, all the priests, deacons, singers, readers and other ecclesiastical officers of different ranks observe the monastic rule in every respect as well as the bishop himself" (Bede's *Life of St. Cuthbert*, Chap. xvi, and *Eccles. Hist.*, Bk. III, ch. 4).

Such a system, developed naturally out of the conditions of life in Ireland, Celtic Britain and Scotland, might well seem strange to clergy accustomed to the Roman system.

One of the most interesting points in the history of the Church development of this period is the friendly interaction and activity that existed between the Welsh (or British), Scottish (or "Alban") and Irish ("or Scottish")* branches of the Church. There was no sense of disunion between them, either as regards diversity of teaching or feeling of national division. If Gildas, David and Cadoc gave a new Liturgy or Mass to the Irish Church, the Irish Monasteries on the other hand welcomed the

* In this paper I have used the modern names, but it is to be remembered that Ireland was called "Scotia" and her people "Scots" up to the tenth century; Scotland was Caledonia, and later Alba; and there was no division between Wales and Britain.

"boat-loads" of students who poured over into Ireland to receive, without payment, even for books or sustenance, the teaching that Ireland was able to impart.

"Why," exclaimed Aldhelm towards the close of the seventh century, "does Ireland pride herself on a sort of priority, in that such numbers of students flock there from England, as if here upon this fruitful soil there were not an abundance of Argive and Roman masters to be found, fully capable of solving the deepest problems of religion and satisfying the most ambitious students?"

Among those who came were the Frankish King Dagobert II., in the seventh century, and an exiled prince of Northumbria.

Let me tell you a couple of incidents out of the saints' lives which will illustrate these friendly relations between the countries. Both Gildas the Historian and St. Cadoc, his almost equally famous contemporary, spent a great deal of time travelling from place to place in Ireland. Like numerous other friendly saints of foreign extraction their names are commemorated in the martyrologies and litanies of Ireland. St. Cadoc, first principal or Abbot of Llancarvan, founded several churches in Brecknockshire, Glamorgan and Monmouth. He was baptized and instructed by an Irish hermit named Tathai, who had settled in Wales and founded the school of Caerwent, and who taught him grammar, literature and the liberal arts for twelve years. He must have instilled the love of his native country into his young pupil, for shortly after leaving him Cadoc, afterwards named "the Wise," gave expression to a strong desire to sail to Ireland and add to his knowledge the learning that was at that time only to be acquired in Irish schools. Having built himself "a strong boat besmeared with pitch," in other words, one of those fragile currachs in which in those times men ventured forth on the most perilous coasting voyages, he set sail from the south of Wales and made a "seasonable and prosperous voyage" to Waterford. At the great monastery of Lismore he was graciously received by the principal and remained with him for three years, "until he succeeded in perfecting himself in all the learning of the West." He returned, accompanied by a large number of Irish and British clergy; but having acquired land in Ireland, he left a steward to collect his rents and manage his property—an early example of the evils of absentee landlordism. On his return to Wales he planned to build a new church, and Irish church architecture being apparently of a more attractive kind in the sixth century than it can boast of being in the twentieth, he sent to Ireland for an architect to build it for him.

That architect came to a bad end. The Welsh builders were so jealous of his superior skill that one dark night they beheaded him, and tying a stone round his body sank it in a pond. St. Cadoc is said to have all his life continued to wear the "thick Irish mantle, rough and hairy," which he had been accustomed to wear at Lismore, and one of the two treasures that he prized most dearly was a small bell of peculiar sweetness which St. Gildas had brought back with him out of Ireland, intending to make a present of it to the Pope. On the way he showed it to St. Cadoc, who was so much delighted with it that he implored Gildas to sell it to him instead. This Gildas would not do, but, fortunately for Cadoc, the Pope on hearing of his desire, for it, determined to send it back to him. He said "that he had heard much of the incredulity and rebellious perverseness of the British nation, but on receiving this bell that he had blessed, he trusted that they would cordially agree and make peace" among themselves (*Lives of the Cumbro-British Saints*, ed. W. J. Rees, 1853).

Let me tell one story on the other side. Both the famous Irish saints of the name of Finnian came across the Channel to complete their education. St. Finnian of Moville was brought up at the monastery of St. Ninian at Witheren in Galloway, and St. Finnian of Clonard studied in South Wales. He was so much esteemed in Wales that it is said that it was through his choice that the Welsh people got their patron saint. While he was there, a great meeting was held to decide whether Gildas the Historian or David the famous preacher should have the "Priority and Headship" of the Churches of Wales. Between two such men they found it impossible to decide, and they referred the question to St. Cadoc, a man who was himself of hardly less eminence than the two selected. He was in an awkward position, as both Gildas and David were his personal friends, and it would have been both unpleasant and unwise to make enemies either of themselves or their followers. Chancing to notice young Finnian in the crowd, he declared that he, not being a Welshman, was more likely to be uninfluenced by personal considerations, and that he therefore should decide. St. David appears to have been very much surprised at this, but he said that if Finnian could give his decision in good Welsh, he would be willing to submit to it. Whereupon St. Finnian is said to have awarded priority to David in such good Welsh "that it might have been his mother-tongue." (*Lives of the Saints from the Book of Lismore*, ed. Whitley Stokes, p. 223.)

I might continue these tales for hours, but they are, after all,

scarcely necessary. Anyone who has travelled through the West of England and Scotland has come in the most out-of-the-way places upon dedications to Irish saints. St. Brigit is as well known to the peasants of Western Scotland as to those of Kildare; St. Finnbarr of Cork has also his hermitages and place-names in Tarbet in Argyleshire, and elsewhere; St. Cannice of Kilkenny is St. Kenneth of St. Andrews; St. Bega, the foundress of St. Bee's monastery, was Irish; St. Brendan, the voyaging saint, has left his name in "Brandon" Hill near Bristol, and crosses of St. Columb are to be found in parishes in Cornwall. Everywhere the disciples of these famous teachers penetrated, leaving on their settlements the revered name of the abbot under whose teaching and guidance they had grown up, and at whose instigation they had left their native land in order to found settlements elsewhere.

But more than this. Let us, before we close, take a glance at the map of Europe and trace the footsteps of the Irish monks there.

Eighteen monasteries in Germany and Switzerland, over thirty in France and many in Italy and the Netherlands (to give to these countries their modern names) carried on into the Middle Ages the memory of their Irish founders. The Welsh or British missionaries confined their work chiefly to Armorica or Brittany, a district largely peopled from South and West Britain; but from the chilly wastes of Iceland down to the vine-clothed Apennines we find the cells, the tradition and the manuscripts of Irish saints. The Canton of St. Gall was named after the companion of St. Columbanus, whose monastery was one of the great central houses of call in the Middle Ages for pilgrims passing from the North into Italy; in Seckingham on L. Constance the bishopric dates back to Virgilius, otherwise Fergal, the Irish Abbot who left his monastery of Aghaboe in Queen's County to settle in the forests of Southern Switzerland; over the Canton of Glarus still waves the figure of St. Fridolin, the Irish saint. St. Cataldus, Patron of Toronto in Southern Italy, St. Colman, patron saint of Lower Austria, were Irishmen. When you enter Florence by the western gate you pass under the portals of St. Frediano, Irish preacher in Florence and Bishop of Lucca; as you climb the sweet slopes of Fiesole you rest beside the little chapel of St. Donatus, an Irish hermit who settled there and built his hut.

Outside the city of Paris is still to be visited the holy well of St. Fiacre, an Irishman whose shrine was so much frequented in the Middle Ages that it gave a special name to the carriages

that bore pilgrims thither, and we still in Paris call a cab "fiacre." Our first knowledge of the lonely Faroe Islands comes from the report of Irish anchorites who settled there in the eighth century, and when the Norsemen first visited Iceland about 870 they found there before them the relics of "Christian men, whom it is held must have come over the sea from the West, for they had left there behind them Irish books, bells and croziers." (*Landnámabók*, Prologue.)

In the eighth century twenty-nine chief monasteries and numerous hospitalia obeyed the Columban Rule; among them the famous foundations of Cologne, Strassburg, Würzburg, Reichenau, Seckingham, Fontaines, Peronne, Liège, St. Gall and Bobbio. "It was," says Mr. Hadden, "a mere turn of the scale that prevented the establishment in the seventh century of an aggregate of churches looking for their centre to Ireland and entirely independent of southern influences." (Hadden, *Essays*, p. 215.) It was in part the severity of the Columban rule that prevented this.

When in 723 the Saxon Winifred, or Boniface, to give him his Romanised name, was sent to the Franks as Papal Legate, not one of the German or Bavarian tribes to whom he went could be considered pagans.

The manuscripts from the large libraries of St. Gall and Bobbio have furnished some of their most treasured possessions to the great collections in the libraries of Turin, Milan, the Vatican and Vienna. These include both classical and theological works. Among them are copies of several previously lost orations of Cicero and the palimpsest from which Cardinal Mai published Cicero's *De Republica*. A famous palimpsest of Virgil, and copies of Horace, Ovid, Juvenal, Terence, Demosthenes and Aristotle attest the broad education of the eighth and ninth century monks and their acquaintance with the classics. Greek paradigms and lists of words and Græco-Latin copies of portions of the New Testament, of which the most important is the manuscript of St. Paul's epistles known as *Codex Bezaerianus*, now in the Royal Library of Dresden, prove their study of the Greek language.

Among ecclesiastical documents, I will only mention two. One is the *Antiphonary of Bangor*, taken out to Bobbio from the Irish monastery of Bangor, co. Down, in the north of Ireland, one of the earliest and most interesting service-books of Western Europe. Among its hymns is the beautiful "Sancti venite, Christi corpus sumete," still sung in the services of the Roman Church, and of which Dr. Neale's fine translation,

"Draw near and take the body of the Lord," has found its way into *Hymns Ancient and Modern*. Thus to-day we sing an ancient Irish hymn used in the Irish monasteries and ascribed by tradition to the age of St. Patrick.

The second is the famous *Muratorian Fragment* (so called because it was discovered by Muratori and published by him in 1740), known among Biblical scholars as containing the earliest existing list of the canonical books of the New Testament as they were recognised in the second century. The MS. is in Latin and of the eighth century, but it is believed to be a translation of a Greek original dating from A.D. 170-180. It omits the Epistle to the Hebrews, and mentions the Apocalypse of St. Peter, which points to an Eastern origin.*

Let us sum up. There existed in the sixth and seventh centuries in these islands a widely-extended and homogeneous Church in close inter-communion as to organisation and origin. It was of native growth and formed along native lines, adopting into church matters the system of the secular tribal organisation. A certain freedom as to ritual and monastic rule existed in the different communities, which, to a limited extent, followed the special idiosyncrasies of the individual founder: but both at home and abroad the ritual and *liturgies* of the Irish monasteries were of the same general stamp as those of Gaul and Spain, with which countries Britain and Ireland were thrown into closer connection on the irruption of the Goths of the north into Italy and Gaul in the fifth century and the break-up of the Roman Empire. In doctrine, Ireland, of which portion of the Church alone we have sufficient ecclesiastical memorials to form an opinion on the subject, seems to have followed the general Western trend of doctrinal development. When Augustine came to England in the year 597, the very year in which St. Columba died, he could discern no other difference in doctrine between himself and the Celtic bishops save some unexplained irregularities in the administration of baptism; yet he neither recognises the bishops of the Celtic Church nor will they hold communion with him. The Roman system, which was but slowly received by the Anglo-Saxons, was resisted for nearly a hundred and fifty years (as Bede calculates) by the independent Celtic Church. Slowly, and after fierce struggles, the weaker party gave way before the stronger, backed by the authority of Rome, and the Celtic Church adopted those changes

* See Gwatkin, *Selections from Early Christian Writers* and *Des Muratorische Fragment*, publ. by Deighton, Bell and Co.

in tonsure, in the date of Easter, etc., which seem now to us matters of little importance, but which were to them the symbol of their origin and organisation, and with which their history and traditions, the affections of the people and the independence of the Church were bound up.

That there was any sense of antagonism to or any lack of respect for the Roman see I find no warrant whatever for supposing; to imagine this is to read back into the seventh century the antagonisms that belong to the sixteenth or the twentieth eras: but to conclude that they were under the domination of Rome is to misread the history of their slow and unwilling adhesion to the new system in Britain. From this time forward the Gallican peculiarities drop out of the Irish service-books, the most important of which, the *Stowe Missal*, shows signs, unfortunately, of having been largely erased and re-written in accordance with Roman ritual. Yet, even so, they retain many curious and interesting forms. But to tell the story of the later Celtic Church does not belong to our duty to-day.

DISCUSSION.

The CHAIRMAN (Lieut.-General Sir H. L. GEARY).—We are very much indebted to Miss Hull for this most interesting lecture on the Celtic Church, and for the pains she has been at to collect all this varied amount of information. One of the most interesting points that struck me was the undoubted fact that the early Christianity of Ireland—the Celtic Church—came direct from the East. We see it evidenced from their groups of seven churches in parts of the country, from the round towers, and from all the ornaments that have been found. I have seen a good many of these ornaments—in Dublin, at the Royal Irish Academy—and they nearly all—certainly all the oldest—are undoubtedly Oriental. I am very glad that Miss Hull has adopted the latest conclusion that St. Patrick came from Wales. I never for a moment held with the Dumbarton theory of his origin; and I think this opinion is borne out by the route the Saint took when he came back again for the purpose of converting the Irish: he came across from the Bristol Channel to

Arklow, and coasted along until he came to Strangforth Lough, near where he had been a slave boy, in county Antrim. Speaking as a patriotic Englishman, and acknowledging how much Ireland has suffered from time to time at our hands, I am glad that we also sent over to Ireland the greatest blessing that country ever received in St. Patrick. He was undoubtedly, from his name, a Roman citizen, and do not the Irish claim that the Romans never entered Ireland? Still, whether he was or was not of British lineage, at all events he came from their side of the water, and his name of Patricius (Celtic "Patrick"), as I have pointed out, shows that he was a Roman citizen.

There is another interesting point that Miss Hull has lightly touched upon, the position of the bishops in the early Irish Church. In a great many cases they were not only bishops, but they were chiefs of particular clans, and they were used to fight with one hand and pray with the other—I was going to say. I think it was St. Columba, when leaving Ireland to go on his mission work, who said he hoped to make amends for the number of people he had slaughtered by converting ten times that number to Christianity.

MR. DAVID HOWARD, V.P.—I specially enjoyed this paper. I am prejudiced in favour of the Celtic Church. I have derived my name from Welsh ancestors; and, being an Essex man, I have a respect for the Celtic Church, because we had such a strong opinion about the diocese of London that we sent home what was left of the missionaries and remained heathen until St. Chad took us in hand from the North; and then we revenged ourselves by corrupting his name to the East Anglican pronunciation of Ceddles.

The fact that Essex owed its Christianity to the North is a proof of the wonderful vitality of the Northern Church. It is not wonderful that the Saxons absolutely declined to accept the religion of the conquered people; there was a feeling of such tremendous strength among the heathen that their God was the God of a particular people. If we realise the strength of this feeling we can hardly wonder that they endeavoured to stamp out the Church as they went on, so that the ground had to be re-won by Augustine and his fellow missionaries; and this fact has very much prevented our appreciating the vitality and grandeur of the Celtic Church.

There are two little details to keep in our minds: the first is the constant evidences of the Eastern origin of our Christianity in the

name "Church"; the only derivation we can find is from the Greek. And the other is that we have carefully orientated our churches; that in itself is an evidence of Eastern origin.

Such a paper as this, with its admirable illustrations of the subject, is very valuable to all of us.

Dr. W. WOODS SMYTH.—Mr. Chairman, I am charmed to have listened to this very interesting paper. Being an Irishman, I was specially interested, and also that fact places me in a difficult position—I have to differ a little from Miss Hull, and it is very hard for an Irishman to differ from a lady.

As it happens, I had to write a series of articles for a religious paper on "Religious Movements in Time Past"; and I had to spend a long time in the British Museum looking up manuscripts, and I could find no evidence of the Celtic Church being, at any time, other than Eastern. After the dispersion occurred from Palestine, people spread abroad preaching the Gospel, and without touching on Rome they swept over Europe, far and near.

It was most interesting to hear Miss Hull tell how the British missionaries spread over Europe. These men were the most energetic missionaries. The zeal of the missionaries of to-day is nothing to that of those Celtic missionaries. If a stranger arrived from Ireland they crowded round him and asked, "What is the name of your people?" "Where is your country?" They did not go out in two and two, as our missionaries are sent; every leading man took twelve others with him and went out to these countries—so that they evangelized France, Switzerland, Germany and the North of Italy—the whole of the Rhineland.

Another point. At the time of the Reformation, and afterwards in Elizabeth's time, when it was required of the Irish bishops that they should adopt the reformed faith and reformed practices, the Irish bishops, the successors of St. Patrick, did so, with the exception of two; one died soon after, and the other left the country, so that they left no successors, and therefore the Irish Episcopal Church of to-day is the representative of the church founded by St. Patrick.

Another point. Some of these Irish monks were married; they took no vow when they entered the monastery, and they could leave it when they wished—it was a life of perfect freedom.

Professor ORCHARD.—Our thanks are due to the author of the review of the Celtic Church, and for the views with which she has illustrated that review. We shall, I think, carry away two or three tolerably steadfast conclusions: one, that St. Patrick was not a Roman Catholic—he professed no allegiance to the Bishop of Rome; and also that he was not the founder of the Celtic Church. He appears to have been the Wesley of his times. I should have thought his extraordinary influence, so far excelling that of the other evangelists, may perhaps be explained by the fact that he was not only an evangelist but a missionary evangelist.* He was undoubtedly a Welshman and also a Roman citizen. The early Celtic Church differed widely, we may say, from the Roman Catholic Church of the Middle Ages. Its monastic system had little if anything in common. Its clergy were very different indeed to the priests who claimed to be in some senses their successors. The agricultural life—the mingling with the people to some extent—was very different indeed from the system which now prevails in the Roman Church.

If Ireland is to find a remedy for her ills and misfortunes it will be by returning to that purer faith of that early Christianity of which St. Patrick was at once the missionary and the apostle.

A MEMBER (REV. SIDNEY PIKE).—I am most thankful to have listened to this lecture. I was called upon to give lectures on Early Church History, and all this came under my notice then. I fully endorse what Miss Hull has said, that we are not indebted to Augustine for the introduction of Christianity into this island; and I would like to give to those who are present here the late Archbishop Benson's statement: "If," he says, "Augustine had landed in Cornwall instead of in Kent, he would have found a flourishing British Church." And I would also like to quote the words of Bishop Lightfoot, who said in referring to St. Aidan and St. Augustine (speaking of the two, and of course of the mission from the North), "Christianity came from the North downward; it sprang from the Celtic Church, it went from Ireland to Iona and from Iona to Lindisfarne, and then other missionaries came down to the Midlands."

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* His extraordinary influence was largely due to his knowledge of the Celtic tongue, gained while he was herding the flocks of his master on the slopes of Slemish, in co. Antrim.—E. H.

He also says in reference to this, that "St. Augustine"—not *is*, but, very cautiously—"may have been the apostle of Kent; St. Aidan was the apostle of England."

I have often thought that St. Augustine's mission was what might be called a failure. This was not his fault at all. I do not want to depreciate the efforts made by him; but I think the circumstances of the time conspired to make it a failure. We have heard about the Eastern Counties. The mission went in that direction; and then in consequence of the King, who was Christian at the time when Augustine went on his tour, dying, his successor became a heathen, and back went the people to heathenism. That was no fault of St. Augustine's and his missionaries, but the fact remains we are indebted not to the Italian mission but to the Celtic Church for the Christianity which we have.

One thing in which I differ slightly from Miss Hull about St. Patrick. I gather from Bishop Brown, in his treatise on the Early Churches, that St. Patrick was not a Roman citizen; that there were two, Palladius and Patricius, who went to Ireland, and the first one was rejected by the Irish (probably, because he was ignorant of the language), and it was the second one who was our St. Patrick. He really was the father in the mission of introducing Christianity and strengthening the Church in that land.

Professor LOBLEY.—I have been deeply interested in the paper by Miss Hull, and especially so as I resided for a considerable time in the parish in which was one of those great crosses of Christianity, and that was a cross that Miss Hull mentioned, but she did not specify the locality of it. She mentioned it as Bangor. It was the Bangor Iscoed, on the river Dee, about twelve miles from the city of Chester. There were three thousand students gathered together and about seven hundred teachers or monks, and the Saxons from Northumberland came and entirely destroyed that settlement and massacred all the monks, and entirely razed the place to the ground, so that at the present time not a vestige remains. That is Bangor-on-Dee, twelve miles from the city of Chester.*

Mr. ROUSE.—I imagined Bangor to be the other Bangor, and the capital of Caernarvon.

* See Miss Hull's remarks.

The Emperor Caracala early in the third century made all the subjects of the Roman Empire Roman citizens; therefore there was no distinction in the early part of the third century between native Britons and Roman subjects; but still no doubt many of the native Britons clung to their customs, and when Maximus endeavoured to assert his rival claim to the Empire at the time Miss Hull speaks of, he led over a large British army, which shows how Roman the British were by that time.

In keeping with this, Miss Hull mentions several missionaries who had Roman and British names. St. Patrick's name of Succat was British.

As the Chairman has gone, we are, I am sure, indebted—greatly indebted—to Miss Hull for the manner in which she has laid the subject before us. She has given us an immense deal of useful information, together with illustrations by means of beautiful views.

Miss HULL.—I have nothing very much to reply to. The questions are very large. The question of the Eastern origin of the Celtic Church is a very important one. There are Eastern peculiarities, but I think that until the Biblical Texts and the Western Liturgies have been thoroughly examined we cannot come to a definite conclusion about origins.

With regard to married monks, there were a large number of lay people living under some sort of general monastic rule, both married and single, but very few, if any, of the monks were married. They passed in as students, but did not all become professed monks or "regulars."

As to the question about St. Patrick being a Roman citizen, there is no doubt whatever of this; he himself boasts of the fact. His father exercised a civil magistracy under the Roman Empire, and I think that would be a very strong reason for believing that the son was a Roman citizen.

The Bangor I spoke of—only once, I think—was neither of the two Bangors mentioned. It was a third Bangor, Bangor Mòr in County Down. It was from there that the service book, *The Antiphony of Bangor*, went out to Bobbio.

I am obliged to you all for your kindness.

ORDINARY GENERAL MEETING.*

LIEUT.-GEN. SIR H. L. GEARY, K.C.B., IN THE CHAIR.

William J. Horner, Esq., was elected Associate.

THE BIBLE IN THE LIGHT OF MODERN SCIENCE†

Abstract of a Lecture delivered by WILLIAM WOODS SMYTH,
Esq., F. Med. Soc. Lon. (with lantern illustrations).

THE interest of truth and the aims of the Victoria Institute will be best satisfied by presenting to you as concisely as possible the leading and essential facts revealed and recorded in our Bible; and side by side with these, the correlative facts which have been reached by modern scientific research.

In this *Excursus*, I have the support of the Bible itself, which forbids much of present-day theological disquisitions, and points us to the knowledge of Natural Science, as you may read in the Book of Job (ch. xxxviii, *et seq.*), as the true path to the knowledge of God.

To begin with the Book of Genesis, let us understand it. It does not teach a "special creation" doctrine. The Hebrew verbs tell of a stately flow of God's creative work such as you see around you to-day in the wide field of Nature. The "special creation theory" is a very late post-Reformation view. The Church in its best days held a doctrine of Evolution. St. Augustine, St. Basil the Great, St. Gregory of Nyssa, St. Thomas Aquinas, held Evolutionary views. St. Augustine speaks of the animals being created by a process of growth,

* Monday, April 9th, 1906.

† This subject is fully treated of in the writer's work, *Divine Dual Government: a Key to the Bible and Evolution*. Horace Marshall and Son, London.

whose numbers the after-time brought forth. The Hebrew word *Bara*, to create, is nowhere used outside this chapter for a "special creation." Once it is used for a special act (Numbers xvi, 30), but this is signalized by using it twice in a verbal and in a nominal form. The word "day" in Genesis is used in three senses—as having limits in evening and morning; as without limits as the Sabbath of God's rest; as for all six days together. St. Augustine says it is impossible to understand what sort of days they were. The writer of the Hebrews calls them "ages" twice, and that settles the question.

We come now to the great stellar universe, which is a great circle, and we are situated, according to Sir Norman Lockyer and other astronomers, in the solar cluster in the centre. The geo-centric position which the Bible suggests for the earth is, therefore, correct. The nebular origin and course of events in the creation of the solar system, according to the Meteorolitic theory, is well established by the researches of Sir Norman Lockyer. Planet after planet of our system became formed, and were for a time rotating round the uncondensed nebula which at a much later date became our sun.

The Bible is well supported in its record of the creation in placing the sun in the fourth day period. It does *not* say the sun was *created* then, but only *made* or formed. The writer was enabled to anticipate the present views of modern science as to the age of the earth by a calculation based on the first chapter of Genesis, as to the relative ages of the earth and sun.

The late Professor Huxley has given us an ideal vision of the whole course of Evolution, which is almost identical to the vision of Ezekiel, and to the strange guards placed at Paradise after the Fall. He says: "Just as the cloud of our breath condenses on a pane of glass on a frosty morning and forms itself into beautiful fern-like leaves, so the flora and fauna of the earth have come forth out of the great nebular cloud." (See Ezekiel's vision, chapter i). The additional points by the Prophet are accurate and interesting. His representation of the revolving nebula is perfect: that it came from the north, there is no doubt—the realm of spiral nebulae, and the colour (amber, golden, viz., yellow) mentioned is accurate as a prevailing colour of nebular stars.

Coming to our own world, the record in Genesis is faultless. The darkness with which that record begins at *the foundation* of the world (see Job xxxviii, 9) is admitted by leading geologists. The infusing of life in the primeval seas: the flora of the land and the fern forests in the dim nebular light, increasing to

sunlight at the close of the Carboniferous ages. The great "sea monsters," namely, *Ichthyosaurus* and *Plesiosaurus*, designating the secondary period, are in perfect place. The eduction of the fowls from the waters—such is the true rendering of the Hebrew—finds the Bible in harmony with one of the greatest triumphs of modern zoology. And, lastly, the mammalia and man close the sacred and the scientific records of creation. Not only is Genesis accurate in its time ratios of the age of the earth and sun, but also in all the time ratios for the several ages of geology given us by Dr. Dana, Professors Hull and Houghton and Professor Walcott.

We observe the Bible records a pre-Adamite man in the first chapter. The female of the first chapter could not be Eve, as she was never in the open field outside Paradise until after the Fall. The directions as to food are also entirely different. Adam was no doubt of this race (Genesis v, 1, 2), as the scripture relating to his formation is *weaker* than the scriptures relating to all men of whom it is said "It is God that hath made us."

At the Adamite age, man had reached the highest degree of mental and physical capacity the race has ever known. Their brain capacity was over four hundred cubic centimetres larger than the modern European. But man had reached a place where the factors of Natural Evolution could do no more for him. There were no resources in Nature to emancipate him from the struggle for existence, none to arrest decay and decrepitude, and none to abolish death. But the great massive stream of progressive Evolution could not be supposed to stop short here; it moves to the goal of balanced rest, to where the desires and aspirations of its highest race are to be fulfilled. These were being fulfilled in the past by living organisms adjusting themselves to the circumstances of their environment, and their death was ever owing to their failure to adjust aright. Accordingly, we perceive that man's high destiny for happiness and endless life turns upon his unfailing adjustment under all circumstances—a thing impossible to him, as it would take an Infinite Being to adjust to the infinite changes of existence. But the difficulty is solved for us by the Bible. It tells us of the Infinite Cause of all things, the living God, revealing Himself to man that He by His guidance and aid might enable him to preserve his life for ever.

Here, then, we have new factors superimposed upon the natural factors of Evolution. What are these new factors? They are the Breath, that is the Spirit of God, and the Word of God supported by miraculous acts as suitable credentials.

Note.—The paper went on to treat of the Fall, and to show in the light of modern science what a stupendous event we must regard it. That the ministry of animal sacrifice and of the Atonement are founded on the solid ground of Nature was also urged by the author.

A warm vote of thanks having been awarded to the Lecturer, the meeting terminated.

ORDINARY GENERAL MEETING,
WAS HELD IN THE ROOMS OF THE INSTITUTE, ON
MONDAY, APRIL 23RD, 1906.

MARTIN L. ROUSE, ESQ., B.L., IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed and the Secretary stated that he had received a telegram from Mr. Hudleston, Vice-President, regretting his inability to be present and to preside.

The following paper was then read by the author :—

ICE OR WATER. By Sir HENRY H. HOWORTH, D.C.L.,
F.R.S. Review by Professor EDWARD HULL, LL.D., F.R.S.
(Secretary).

THE author of this work has been so good as to present me with Vols. I and II, and as he warmly invites criticism, it seems to me that the best return I can make for the gift of my valued friend is to examine some of his facts and arguments, and to try and induce him to accept ideas more consistent, as I conceive, with physical facts and sound reasoning thereon.

On receiving the volumes some months ago in the height of the busy season, it occurred to me that some of my colleagues of the Victoria Institute might be induced to undertake the preparation of a review which might be read before the Institute during the coming session, and discussed in presence of the author himself. But, failing in my effort, I resolved to keep the volumes, and as a "vacation task" undertake a review of their contents for the Session of 1906. The result is the present paper.

I need scarcely say I am no fit antagonist for such a master of physical dialectics as Sir Henry Howorth, nor can I lay

claim to the wide extent of reading from authors, not only British but European and American, evinced by the volumes themselves, especially on subjects which have occupied his pen and attention for sixty years, as he himself states. The present volumes are the third part of a trilogy directed against the prevalent errors of geologists according to the views of the author, of which the first is *The Mammoth and the Flood*, and the second is the *Glacial Nightmare*. The third volume of the present work is still in abeyance.

The author objects, and rightly, to have his views criticised by novices, some of whom "have never seen a glacier," and this being so it is necessary for me to show my credentials for the office of critic and controversialist.

Like the author, I have for many years been engaged in studying glacial phenomena both at home and abroad. My first lessons on the effects of glaciation in the region of vanished glaciers were received under an able master of this subject, the late Professor (afterwards Sir Andrew) Ramsay, amongst the hills and valleys of North Wales. Ramsay afterwards published a treatise, not mentioned by our author, *The Old Glaciers of North Wales*, and afterwards his celebrated paper on "The Glacial Origin of Lakes,"* which, notwithstanding all that has been written on the subject by opponents of his theory, has not, I venture to state, been seriously undermined.

When carrying out the Geological Survey of Lancashire and Cheshire some years later, I carefully studied the drift deposits, which are there developed on a great scale, and are well known to Sir Henry Howorth. The late Mr. Edward Binney had previously been engaged on this work and had classed the divisions of the Drift into Boulder Clay (Till) below and sands and gravels above; to this series I added the "Upper Boulder Clay," a very important division which our author has (as it seems to me) overlooked or confounded with the Lower Boulder Clay or Till—a source of many errors amongst geologists.

My next work was amongst the mountains of the Lake District. Up to this time (1864) glacial phenomena had not been recognised as such in the Lake District, the boulders, *roches moutonnées*, and ice-striations having been accounted for on the hypothesis of Buckland's General Deluge in his *Reliquiæ Diluvianæ*. However, after the knowledge I had gained with Ramsay in North Wales, it was not long before I was able to announce to him that I had observed similar glacial phenomena

* *Quart. Journ. Geol. Soc.*, vol. xviii, p. 185.

in the valleys of Westmoreland as those which I had seen in the former district; and, map in hand, I set about a detailed survey of the glacial striæ throughout the whole of the Southern Watershed of the Lake District.

The results were published in a paper, illustrated by drawings, in the *Edinburgh New Philosophical Journal*, then edited by Professor Edward Forbes.*

On being appointed to the charge of the Geological Survey of Ireland, I, together with my colleagues, especially Mr. Kinahan, made a special study of the Drift phenomena. Wherever the glacial striations were observed, their directions were carefully inserted on the six-inch maps, and have resulted in showing a beautiful system of ice-movement directed from an axis of maximum precipitation crossing Ireland from Antrim to Mayo, with occasional centres of dispersion—as, for example, in the Wicklow and Killarney mountains.†

Some time previously the late Rev. Maxwell Close, a most able and learned observer, had produced a glacial map showing the direction of the ice-movement over a large part of Ireland, on which my own later map was partially founded. Close was also the discoverer of the marine shells of living species in County Wicklow, in gravel at an altitude of 1,200 feet above the sea-level, in keeping with those of Moel Tryfaen in North Wales.

As for the rest, it may suffice to state that I have visited glaciers in Switzerland and Norway, and paid special attention to the moraines, both lateral and terminal, of several existing glaciers.

Having thus stated my personal observations and experiences, I should hope sufficiently, to allow of the right to be heard regarding Sir H. H. Howorth's views, I proceed to offer some remarks on a few selected subjects in these volumes, premising that they deal with only a small portion of the wide field over which the author has thrown his net, or over which he has run tilt against many able and distinguished antagonists. I shall confine my remarks to three subjects. First, the cause of the "Ice Age," or Glacial Epoch. Second, the erosive effect of glacial ice; and third, the power of glacial ice to transport

* One of my drawings was afterwards reproduced by Lyell in his *Antiquity of Man*, with due acknowledgment; it is a *roche moutonnée* in Ambleside churchyard. More recent observers have been less careful to recognise my priority in this field.

† A map showing the general Glaciation of Ireland accompanies my little volume on the *Physical Geology of Ireland*, 2nd edit.

matter and surmount obstacles. It need scarcely be observed that to deal with these subjects otherwise than briefly, would be impossible in an essay such as the present. The author passes in review the various theories that have been propounded to account for the Glacial Period. He examines the astronomical theories of Croll and Sir R. Ball, and rejects them on what seems to me sufficient grounds, notwithstanding the high authority of the authors of the theories themselves.

The author then goes on to deal with the views of Lyell, Professor J. Geikie, Professor Prestwich, Chamberlin, and others, and finally concludes with rejecting the generally accepted evidences of a Glacial Epoch of Post-Tertiary age. I hope I am not misrepresenting my friend, but the following are his words:—

“Are we obliged, or in fact are we justified, in invoking a great Ice Age with its portentous ice-sheets . . . in order first to account for the striæ on the polished rocks and on the boulders, and secondly, for the manufacture of angular drift? To my mind the questions only need to be asked to answer themselves.” Again: “I have shown that the striæ can be, and ought to be, assigned to an entirely different agent than ice if we are to follow inductive methods.” (Preface, p. xliii.) He then goes on to dispute the glacial origin of moraines, referring them to the movement of stones and boulders over the rock-surfaces by the action of concurrent and divergent streams of stones, in many cases covered by drift.

To this I will reply, that no one who has studied the symmetrical arrangement of lines of grooving and striation over the glaciated surfaces of solid rocks in glacial districts could for one moment suppose they had been produced by the rubbing of stones and boulders promiscuously passing over the surface.

Such statements as those quoted induce the doubt whether so gifted an observer as the author has not allowed his better judgment to be warped by a mistaken conception of the nature of glacier ice.

When the author comes to deal with the latest theory, namely, that called by Mr. G. K. Gilbert “The Epeirogenic Theory,” he evidently feels that he is treading on more dangerous ground than when dealing with the views of the before-named glacialists. In the first place this theory has the support of a number of very distinguished adherents in America—and to a less extent in this country—at the head of which stands the venerated name of Professor J. Dana, followed by those of Chamberlin, Warren Upham, Professor

J. W. Spencer. To these may be added Dr. Nansen and the author of this essay.* The gist of this theory is that it attributes the cold climate of the glacial period to the elevation of the land far above the present levels, as shown by the submerged (or "drowned") valleys continuous with those of the present day and passing under the ocean down into the abyssal floor as shown by the soundings. Sir Henry Howorth admits that this theory has a good deal to be said for it. He says "The one theory which still has a respectable following, not in this country, but in America,† is the so-called Epeirogenic theory of an ice age. It is based on a very plausible and true idea, namely, that the low temperature of high latitudes is very largely caused by, and dependent on, the high level of the land there, and if we could secure a sufficiently elevated mass of land in high latitudes in so-called glacial times we should have done a good deal to explain the glacial theory." (Vol. ii, p. 2.)

Now this, I maintain, has actually been done; and it is no fault in our author that he has not seen his way to accept this theory, because much of the evidence on which the fact of the high elevation not only of the Arctic regions, but of those lying to the south of the Arctic circle, has been founded

* In my paper on "Another Possible Cause of the Glacial Period," *Trans. Vict. Inst.*, 1898.

† The statement that the Epeirogenic theory has not many adherents in this country is only partly true. Like every new idea, it takes time to spread; but that it is gaining adherents there can be no doubt. The existence of the submerged valleys is scarcely denied by any who have taken the trouble to examine the matter for themselves. There is only one outspoken opponent, and Professor Spencer has sufficiently answered him; but my charts with the isobathic contours, showing the sub-oceanic terraces and valleys, have been laid before Lord Kelvin, Lord Avebury, Mr. Teall, Lord Ducie, Professor Spencer and others, besides scientific assemblies in Dublin, Bristol, Manchester and Glasgow, two of these being British Association Meetings; and lastly, the Royal Geographical Society and the Victoria Institute. I here insert a copy of a letter recently received from Professor T. Rupert Jones, F.R.S., formerly Secretary to the Geological Society, which will serve to show the views of a very leading and experienced geologist on the subject of the submerged valleys. The letter is dated 18th June, 1905, and is as follows:—"Dear Dr. Hull,—I am delighted to find that your conclusions with regard to the 'Submarine Platform and Valleys' have been so clearly and exhaustively reviewed with pleasing concurrence and strong support by Dr. Spencer in his paper published in the *American Geologist* of March last, and of which he has kindly sent me a copy." Till I received this gratifying letter, I was unaware that Professor Rupert Jones was a supporter of my views. That he is so is a source of much satisfaction.—E.H.

has been obtained within very recent years—perhaps after some of the pages from which I quote were written.

The Epeirogenic theory in general characters resembles that of Lyell—which has been rather slightly touched upon by our author—but it differs therefrom in this respect, that Lyell's theory is based on the interchange of land and sea, rather than on the vertical uplift of the land. Lyell showed in his great work (*Principles of Geology*) that if the great mass of continental land was disposed round the pole—and its present position occupied by the ocean—glacial conditions would be the result. Of this there can be no doubt; but there is no evidence that such a distribution of land and water took place in Post-Pliocene times. It was an hypothesis and nothing more.

The Epeirogenic theory, on the other hand, is based on actual observation by means of soundings along both sides of the Atlantic and more recently by Nansen in the Polar seas. These observations unquestionably prove that the existing river-valleys entering the ocean are prolonged outwards under the surface, and traverse the continental platform in the form of cañons, with well-defined sides, to depths of several thousand feet. As such valleys could only have been eroded under the atmosphere, the inference is simple and inevitable, that these areas were in the condition of land when the valleys were in course of formation.

The credit of working out the form and direction of these "drowned valleys" on the American side is chiefly due to Professor J. W. Spencer, whose name scarcely occurs, I regret to say, in the volume now under review: but undoubtedly it would have added much to the value of this work if there had been a full treatment of the subject regarding the formation of the sub-oceanic physical features.

As members of the Institute are aware, the writer has contributed several papers descriptive of these submerged valleys on this side of the Atlantic* to the *Transactions*, and the determination by Dr. Nansen of similar features bordering the Arctic lands (including the continental platform and the valleys by which it is traversed) ought to assist in dissipating the unreasonable prejudice which has retarded the general acceptance of the results at which we have arrived.

* Vols. xxx, p. 305, xxxi, p. 259, xxxii, p. 147; and Professor Logan Lobley, vol. xxxiii, p. 419.

According to our author, Professor Dana was the originator of the Epeirogenic theory (vol. i, p. 135), and his views are thus concisely given :

"Dana argued that the fiords which exist so much in northern latitudes were valleys eroded by streams during a formerly greater elevation of the land in high latitudes. The culmination of this uplift, he argued, gave rise to a high plateau climate, with abundant snow-fall, forming an ice-sheet. This movement of elevation was followed by one of depression, during which the ice-sheet was melted away ; and this again was followed by another elevation, bringing the land to its present height."

These views are supported by Mr. Warren Upham, and I may add are very closely in harmony with those I have advocated for many years, and with those of Professor Spencer.

The key to the problem lies in the occurrence of an " Inter-glacial " epoch, an epoch of depression succeeding that of high elevation, and followed by a partially recurring cold period of re-elevation. It seems to me that had our author recognised these stages he would not have experienced the difficulties on which he dwells: for example (p. 136), where he speaks of Greenland, Scandinavia and North America being "at a much lower level in the so-called glacial times than they are at present." The evidence for this statement is derived (I presume) from the occurrence of the raised beaches, with marine shells at various places in these countries—but these terraces are in fact post-glacial ; more recent than the later glacial period, and certainly than the interglacial.

In no part of the British Isles are the three divisions of the drift deposits better shown than in the County of Lancashire, with which Sir H. H. Howorth was so honourably connected some years since* ; and out of the numerous sections of these deposits I would point his attention to the fine section in the valley of the Ribble, a few miles above Preston, which I figured and described many years since. Here at a point where the river makes a fine curve in its course, the banks rise to about 120 feet in height—the whole in drift deposits representing the three stages above referred to. They are as follows, downwards :

* As M.P. for Salford.

Section in the Banks of the Ribble near Balderstone Hall.

	Approximate thickness.
3. <i>Upper Boulder Clay</i> ; Red, partially stratified clay with some stones round or sub-angular	60 feet.
2. <i>Interglacial Beds</i> : Stratified beds of water- worn gravel and sand	50 "
1. <i>Lower Boulder Clay</i> (Till). Dark, stiff clay with angular blocks and pebbles	10 "
Total	120 feet.

The sandstone supporting these deposits was not visible at the water edge, but was doubtless close underneath.*

These deposits are spread over a large area of the north and centre of England, and are representative of the three divisions of the glacial period—the lowest of the land ice-sheet—and period of maximum cold and elevation; the middle, of the Interglacial submergence and the return of warmer conditions due to the greater influence of the Gulf Stream; and the Upper, of partial re-elevation and deposition under the waters of a glacial sea, charged with mud derived from the still existing glaciers which retained their hold on the higher levels of Wales, Cumberland and the Scottish highlands. The occurrence of this stratified upper boulder clay with shells explains one of the difficulties which have beset our author, as also Mr. Warren Upham. The shells do not (as far as I am aware) occur in the Till or Lower Boulder Clay, but only in the Upper Boulder Clay which was deposited in sea-water.†

Our author, when dealing with the fiords, denies that they are partially submerged river-valleys. When writing on the subject of the Norwegian fiords for this Institute, I assumed as beyond controversy that such was the case‡; but our author raises the objection that they are deeper some distance up from their mouths than at the outlets themselves. This remarkable fact, the knowledge of which is derived from the soundings on the Admiralty charts, I had ascertained for myself, but it did not lessen my belief in the fluvial origin of these remarkable

* "Geology of the Barnley coal field, etc.," *Mem. Geol. Survey*, p. 129, Fig. 26 (1875).

† There may be conceivable cases where shells may be met with in the Till, but these are quite exceptional. The Till, when resting on solid rock, has its floor generally striated and polished.

‡ "On the Physical History of the Norwegian Fjords," *Trans.*, vol. xxxiv, p. 125.

physical features. The deepening of the central part of the fiords I attributed to the erosion of the glaciers which occupied the valleys during the Ice Age, and in this view I am supported by Professor Spencer and, I believe, Dr. Nansen. An additional cause of the shallowing towards the outlet is the accumulation of vast deposits of moraine matter, thrown down by the vanished glaciers of this period.

Now, Sir Henry Howorth is very unwilling to credit glacier ice with any erosive power over its floor; but he gives his case away when (dealing with this subject) he says:

"To be a little more concrete, I would urge that ice, being a viscous body, when armed with suitable tools in the shape of stones, can polish and in *some measure erode*, but cannot, except under very exceptional and peculiar conditions, and in very limited areas, excavate and dig!"

The author seems aware that in dealing with the erosive power of ice "armed with tools," he is treading on very slippery ground, and if glacier ice thus equipped, and of enormous thickness (in the case of the Sogne Fjord probably 5,000 feet) can "in some measure erode," why not during long ages can it not grind a hollow where it is most thick and presses on its floor with greatest weight, namely, in the centre of its course towards the sea?

It was for this reason that Ramsay suggested that to glacier ice was due the deepening of the great lakes (if not their actual and initial formation) on both sides of the Alps, and to this cause alone can the deepening of the Scandinavian fiords in the central portion of their course be referred.

Sir H. Howorth denies that glacier ice is capable of passing over hills or elevated ground lying in its path, or "to travel over the enormous stretches of more or less level country" (Preface, p. 37). This statement I can meet with several examples taken from each of the three countries constituting the United Kingdom, and they are derived from personal observation.

First. A fine glacier formerly descended the Langdale Valley in Westmoreland, having its source in the snowfield which occupied the Central Mountain heights of the Lake District. At its lower end occurs a ridge, a few hundred feet in height, thrown athwart the valley itself, which might well have been supposed to form an effectual barrier to the movement of the glacier—not at all! The striations, which are perfectly distinct, and parallel to the centre of the valley, are seen to ascend and pass over the obstruction to the opposite

side, showing that the hill was no effectual impediment to the ice-movement.

The second example is taken from the Firth of Clyde. Those who know this part of Scotland will recollect that the Valley of Loch Long enters the Clyde opposite Greenock in a direction at right angles to that of the latter. A glacier descended from the Argyllshire highlands through Loch Long into the Firth of Clyde, which is very deep at this part of its course, and on the south side of the Firth the ground rises out of the water into considerable hills. These are formed of basaltic rock, mammillated and striated with glacial markings. But the remarkable fact is that the striae point in the direction of the Loch Long Valley—not in that of the Clyde; in other words, approximately north, not westward, which is the direction of the banks of the Clyde at this place. It is clear, therefore, that the glacier, coming down from the north, passed right across the Clyde basin and ascended the high ground forming the southern bank. The evidence is perfectly clear in this case* that the ice ascended the ridge opposed to its course.

My last instance will be taken from Ireland, of which a glacial map will be found in my little work *The Physical Geology of Ireland*.† This map does not support the view that “a glacier cannot travel over enormous stretches of country,” as it shows that the whole of the central plain of Ireland was covered by an ice sheet moving along lines in a southerly direction and originating in an axis running along the borders of Ulster. Now here we have (at least) one remarkable example of the power of glacier ice to ascend and pass over obstructions to its course and to travel over large stretches of country.

Again; standing on Bray Head, about 900 feet above the sea, and 200 feet above the plain, and formed of Cambrian grits and slates, we observe that the rocks are finely glaciated and striated by lines pointing in (approximately) a north-west direction, that is to say, over the plain, formed of carboniferous limestone which stretches away at a depth of several hundred feet beneath our feet. In other words, the ice, moving over the plain from the north-west (the position of the central axis of movement), has ascended the slopes of Bray Head and passed over the summit in the direction of the sea. When I first observed these phenomena I was, I confess, struck with amaze-

* The glacial striae at this place were marked by myself on the 6-inch map when I was carrying out the Geological Survey in 1870.

† 2nd edition 1891.

ment, and I had to fall back on the theory of the *vis a tergo* arising from the enormous accumulation of snow over the area of the central axis of dispersion, supplemented by Tyndall's views of the molecular movement arising from the diurnal melting and re-gelation of the ice in the body of the glacier itself. I should add that the flanks and summit of Bray Head are strewn with boulders of limestone, granite and other rocks foreign to this neighbourhood, the sources of which can be determined in several localities over the Central Plain.

With these examples I conclude my essay and criticism. There are many points on which I agree with the author; as, for example, the estimate of about 10,000 years (or less) for the glacial period advocated by Gilbert, Upham and Prestwich; but I fail to find that he has grasped the full significance of the phenomena presented by the Post-Tertiary Ice Age, or that he has recognised the changes of level which the crust has undergone during that period, or the effects resulting from these changes.

On reading over this paper again after the interval since it was written, I am sensible that it is far from being a sufficiently comprehensive review of the work of Sir Henry Howorth. Even the points dealt with would, with advantage, have merited a more extended consideration. But I hope it will be admitted that I have endeavoured to meet the questions on which we differ in a fair and courteous manner. For my own part, no one dislikes controversy more than myself.

DISCUSSION.

The CHAIRMAN.—I am sure we are immensely interested in this review. Although we have not all had time to master the book, of which this is a review, still we have had the pleasure of hearing Professor Hull set forth his deductions of the evidences of the river valleys underneath the sea through the submarine plateaus, and he has most ably proved his points. I now call upon any who have remarks to make to speak to us on this subject. I hope we shall have a very interesting discussion. I regret the absence of Sir Henry Howorth.

Mr. PILKINGTON, M.Inst.C.S., having discussed the subject at some length.

Professor LOGAN LOBLEY, F.G.S., said :—I have not had the advantage of reading Sir Henry Howorth's work, and so I am scarcely prepared to discuss.

I am very glad to be present to hear the remarks of Professor Hull. I generally agree with what he has to say on geological subjects, and in his paper I am almost in full agreement—there may be one or two little points on which I differ—but generally speaking I am quite in agreement.

The great question of the cause of the glacial period, as it is termed, has been worked out, I think, very well by those who have supported the Epeirogenic theory. I may say I am very much in accord with that theory. The fact of there having been a glacial period can admit of no doubt from those who observe nature in the regions which have been subjected to this inferential glacial action. Two or three weeks ago I was in North Wales and I saw there abundant evidence of glacial action. These evidences of course are well known to geologists. Mr. Pilkington has said that there could not have been a glacial period. I should recommend him to take a little tour to North Wales and see for himself the evidence that there has been such a glacial period. He says the earth is too hot now and oppressive; when it was cooler there could not have been any glacial period; but may I venture to say that there *is* a glacial period now which he cannot doubt. There is a glacial period in Greenland at the present time. Is the earth too hot for glacial conditions there? There is a glacial period all round the North Pole and all round the South Pole, where we have glaciers going off fully thirty miles in length. My friend William Bruce, of the Scottish Antarctic Expedition, passed an iceberg as large as the Isle of Man, floating past the land area which surrounds the South Pole; so we have a glacial period on the earth at the present time in certain areas, and the only question is whether these glacial conditions have been more extensive at that time than they are at present; not whether there is or has been a glacial period. *There is a glacial period.* The only question is whether the glacial conditions now existing have at a former period extended over more extensive regions than at present. We have, not only in North Wales, but in the North of England, the Lake District, in Wales and many parts of England and Ireland, sure evidences of previous glacial action.

I was very glad that Professor Hull brought out prominently his differentiation between the older glacial clay and the newer glacial clay, for it has always been a difficulty to account for the remains of fragile fossils in the boulder drift, seeing that the ice action would probably crush these to pieces. In Northampton some time ago I collected from the glacial clay which overlies the Oxford clay very complete fossils indeed, which I identified from the Lower Lias clay, from the Upper Lias clay, and some from the Kimmeridge clay—fossils not crushed or injured, but as good and sound as when they were in the original clays. That shows that the whole of the glacial deposits which we have in the Midlands have not been the result of land ice, but that these particular glacial deposits have been deposited there from ice-masses floating over the sea, and they have been dropped and have not been the result of the pushing on over the land by ice. We have centres of dispersion of ice, as in the north of Ireland and Scotland, and through the Lake District and Wales, centres of dispersion of large glaciers. On the other hand the glacial deposits above referred to have been the result of material brought by floating ice and deposited in water.

As regards the time that is given by Sir H. Howorth of 10,000 years, that seems to be inadequate to explain all the changes that we know have taken place during the glacial period, for we have the elevation of shells on Snowdon, 1,300 feet, which must have taken place during an epoch of depression of the land during that period, and 10,000 years seems too small an amount of time to allow for these great changes.

Mr. ROUSE.—(Referring to the shells.) Are they at all associated with any glacial phenomena? They are shells that are living in the Irish Sea now, quite recent shells.

Professor LOGAN LOBLEY.—If we allow sufficient time there is no difficulty at all in imagining the great uplift elevations that were necessary to produce a climate such as would cause severe glacial conditions, for we must remember that although 5,000 feet seems a tremendous change of level, that is only about one mile or one four-thousandth part of the diameter of the earth, and with expansion and contraction of the masses of the globe. A very slight amount of expansion or contraction would account for an alteration to the extent of one four-thousandth part, and we have

evidences in the Himalayas of land having been raised to 14,000 feet since the miocene period, so we have no difficulty in imagining this elevation.

All these phenomenal things abundantly confirm the conclusions geologists have come to, that there has been a post-tertiary glacial period, and that there were glacial conditions on a much more extensive scale than exist at the present time.

Mr. J. BRIDGES-LEE.—I have not had the advantage of reading the work of Sir Henry Howorth. I know something of Professor Hull's work and I have listened with considerable interest to the paper which he has read. There is apparently even in these days a fair amount of misconception abroad about the glacial question, which I take to be a matter of certainty, as much as anything is certain.

A number of years ago during the period called the glacial period there was an immensely larger amount of ice action than now in this island, and I take it that the glacial action that is talked about is glacial action in this part of the world. It is a fact that there was this glacial action; it is proved by such an enormous amount of evidence that I take it that geologists who have devoted their lives to the study are practically unanimous about this, as regards this country as well as throughout the rest of the world. The cause may be open to a certain amount of discussion, and a good deal of doubt of the total number of causes which have been at work. It is impossible for people to be altogether free from doubt. I notice Professor Hull has not alluded to a theory which I have always been in the habit of associating with the glacier period, that the motion of the earth's axis, the motion about its own centre, the motion of an hour-glass, described an angle, and this would tend to affect the motion, angle and incidence of the sun's rays upon this part of the earth and tend to affect the temperature. A great increased elevation of the mountains in Norway and parts of England, Ireland and Scotland would undoubtedly be the cause for the development of much larger quantities of ice and snow in temperate and high latitudes. There is abundant evidence now to show us that in many regions the land was very much higher at or about that time than it is at the present time.

One of the theories for the possible causes which might have affected the temperature in this country might be alterations in the

surface level in some very distant places. We must remember that at this present time the temperature of England is above the ordinary temperature of other countries in the same latitude. We are warmed by the Gulf Stream ; we are warmer than we should be if the Gulf Stream did not come our way.

There have been a great many causes but there is abundant evidence to show there was an enormously increased amount of ice at the period of which Professor Hull has been speaking.

Then about the striæ going over hills and across valleys, one gentleman who has addressed us said there is no movement in the ice. I cannot help saying we are dealing with something which has been so much investigated it is outside the region of controversy. Professor Tyndall made a very careful series of examinations, and the exact rate of motion of a glacier has been determined ; and not only has the rate been determined but the reasons why ice moves have been pretty well worked out.

Ice is one of those curious things which behaves in a curious way. When water freezes it expands. Most other articles contract. Water expands, and if you take out the ice at or about a freezing temperature and crush it by hydraulic pressure you could crush it into any shape. When the pressure is put on the ice yields ; it becomes liquid ; but it solidifies again immediately pressure is taken off ; and, speaking from memory, I believe that Professor Tyndall succeeded in squeezing ice into a lens, and other forms. At the bases of heavy glaciers where you have ice hundreds of feet thick in some places there would be enormous pressure at the bottom. The ice at the bottom will be in contact with the earth, and the upward convection of heat will tend rather to raise the temperature of the floor of a glacier towards the bottom. The pressure of the ice upon this will cause it to liquefy in the neighbourhood of the solid surfaces, and then solidify again immediately, so that the glacier moves on. The ice at the bottom gets crushed by the heavy pressure and the temperature at the bottom is at, or near, the melting point because it comes in close contact with the earth at the bottom. It has been proved, the ice where the pressure is greatest, will melt underneath, slightly melt, and solidify again immediately when it has got to a place where the pressure is less. That helps to account for the flow of the glacial ice. I do not know if that is the full explanation. There is

another explanation which might perhaps apply. No bodies in Nature are absolutely rigid; rigidity is a negative quantity, and ice is a body which has a certain small residuum of fluidity appertaining to itself, in the same sort of way as lava or treacle, so that it flows slowly. This is our hypothesis based upon certain broad facts, but we have the fact that the glacier does move forward, and that in moving forward it will succeed in moving over hillocks of moderate height at least, and will leave traces of its movement behind; and that traces are left of a perfectly unmistakable character, rocks getting polished, scarred and striated, which can only be accounted for by the assumption that there has been extensive glacial action.

Mr. ROUSE.—Would not the existence of caverns running underneath glaciers for some distance, would not that be in keeping with Tyndall's theory of the ice melting at the bottom in coming into contact with earth and then afterwards solidifying again?

Mr. BRIDGES-LEE.—The bottom of the glacier would tend always to be at most of the bottom in a melting condition. All glaciers flowing over uneven surfaces, and the sun's rays melting the surface, the water runs down through the crevasses to the bottom, and so works out along the basin of the glaciers. For every glacier is practically the same: from the end of the glacier you have a stream of water issuing, and that water is made up of a number of little rills which have melted during the day time, owing to the action of the sun on the surface.

Professor HULL.—I think the discussion has been one of very great interest. We congratulate Mr. Pilkington on surviving to the present day and being present here after those terrible periods of cold that he has passed through in Canada. I do not see how the observations that he had made then, and which he has now recounted, really affect the question with which I have endeavoured to deal in my essay. I think the questions stand quite aloof. I will only refer to one point, where he said there is nothing in the Bible which indicates the existence of a glacial period. Quite true; but can you suppose that in Palestine, in that warm climate, anything in the shape of glacial ice would have been present to attract the attention of the writers of the Old Testament history? But notwithstanding that, let me say that Mount Hermon in the Lebanon, which rises 12,000 feet above the sea, was undoubtedly

covered with perennial snow, and sent down a magnificent glacier to a level of 4,000 feet above the present surface of the Mediterranean. That glacier is represented by the great moraine on which the cedars of Lebanon are growing at the present time; and it was identified by Sir Joseph Hooker. The existence of a glacier at that period was long before the writers of the Old Testament were born.

I feel gratified at the concurrence of Professor Lobley with what I have stated in my paper. I think it is too late to dwell upon them or to add anything to what I have said. I should like to say that in regard to the centres of dispersion of the ice period in Ireland that even at the extreme south-west of Ireland, where the temperature is much the same as that at Biarritz, in the west of France, there were large glaciers coming down from the mountains of Kerry which were covered with snow, and sent down glaciers through the valleys into the sea and on to the land. Their traces are very clearly shown, so that the extension of the ice must have been very prevalent over a large part of the British Isles.

Mr. Bridges-Lee has referred to a possible cause of the glacial period, namely, the movement of the axis. No one can deny that if there had been such a change in the equator, with regard to the ecliptic, it might have brought about such a change as would produce a glacial period, but I am so strongly impressed with the view that it was owing to the elevation of the whole land along Europe and West Africa that it is unnecessary to have recourse to such recondite reasons as that referred to. I am really unwilling to accept any other theory for that remarkable period in geological history. I am obliged to you for your kindness; I trust that nothing I have said, or any opinion expressed, could possibly give offence to the author of this work.

The meeting closed with the usual votes of thanks.

COMMUNICATION.

The following communication was received from Mr. F. W. HARMER, F.G.S.

Dear Professor Hull :—

I fear that our friend Sir H. H. Howorth is so confirmed in his own views that your well-meant effort to convert him has but little chance of success. On the other hand, his views seem to be making no progress; in spite of the earnestness and forensic skill of his writing I do not think he has made a single proselyte among field geologists.

A vast amount of information has been collected during the forty years over which my interest in this subject extends, as to the pleistocene deposits of England, and the erratic boulders they contain. Dealing with the subject as a whole, it is found that these drifts arrange themselves in clearly defined groups, different alike in origin and distribution. Now it is hardly fair for Sir Henry to imply that those who think that the most satisfactory explanation of this distribution is that it is due to the action of ice, are like men half asleep, under the influence of some absurd and senseless "nightmare," unless he has himself something better to offer. To suggest that these deposits may be due to a great flood is a guess, pure and simple. Before such a view can be entertained, much less discussed, it is necessary to show, in detail, that it can be made reasonably to accord with the observed facts, and with all of them.

For some years I have been endeavouring to construct an erratic map of England and Wales, and hope shortly to publish it. I believe it will be found that the land ice hypothesis gives, not only a possible, but the only satisfactory explanation of the distribution of the drift. I shall respectfully challenge Sir Henry to show that it can be as well explained on his hypothesis.

It would be easy to give instances as to the movement of erratic blocks having a similar bearing on the question as the striations mentioned in your paper. There is, for example, the well-known case of the Shap granite boulders, which occur along a trail starting from the mountain region of Westmoreland. Crossing the Valley of the Eden, the bottom of which is between 500 feet and 600 feet only

above the sea level, it climbs the Hainmoor pass (about 1,400-1,500 feet), descending thence along the Tees valley to Darlington (about 150-160 feet). From Darlington the Shap boulders are carried in two directions, first to the mouth of the Tees, and to the south-west along the Yorkshire coast, from Saltburn to Flamborough Head and Spurn Point; and secondly, along the Vale of York, through which they have been traced as far south as Barnsley and Doncaster.

Let me give another case from East Anglia, equally interesting. There are found in Lincolnshire on the west slope of the Wolds, as at Market-Rasen, and elsewhere, some peculiar erratics of Neocomian age, which are as easily identified as Shap granite. Boulders of the same kind are exceedingly common in West Norfolk, not only on the low ground bordering the Wash, but also on the higher land of the chalk escarpment. From this region I have traced them in a south-east direction, forming a broad but well-defined trail, which crosses the valley of the Little Ouse (50 feet), and then climbs the boulder-clay plateau of central Suffolk (over 200 feet), finally reaching lower ground to the north of Ipswich. It is difficult to understand how the distribution of these two groups of erratics, in regions open on all sides to the sea, to which flood water would naturally flow along the easiest route, could be explained in any reasonable manner by Sir Henry's hypothesis. If, however, all the similar cases which might be given had to be considered together, the difficulty would be, I think, insuperable.

Yours very truly,

F. W. HARMER.

ORDINARY GENERAL MEETING.*

CAPTAIN G. P. HEATH, R.N. (RET.), IN THE CHAIR.

The Minutes of the last Meeting were read and confirmed.

A lecture, which was illustrated with diagrams, was delivered by the Rev. A. B. Grimaldi, M.A. (Camb.) on :—

*THE ZODIACAL ARRANGEMENT OF THE STARS:
IN ITS HISTORICAL AND BIBLICAL CON-
NECTIONS.* By Rev. A. B. GRIMALDI, M.A. (Camb.).

A FEW NOTES ON THE LECTURE.

QUINTILIAN says, "It is necessary to understand astronomy if we wish to understand the poets." Of course he alluded to the classical poets; but it is evident that we may read with much interest and with benefit even, within proper limits, the classical poets, with a very minimum amount of astronomical knowledge, taking the word astronomy in the modern sense. He must therefore have referred to the Signs.

Zodiac.—The meaning of the word is not "little animal"—this term cannot be applied to all the signs—the real meaning is "a path."

The lecturer's view is that Seth arranged the stars in the sun's apparent course, during twelve months, into twelve great groups called signs; that Enoch concluded the work by arranging the stars within and without that circle into thirty-six groups called Decans.

It is the only antediluvian work left. It is of world-wide universality. It belongs to the Christian world, it is connected with the whole of humanity. A work to which deep mystery

* Monday, May 7th, 1906.

was attached. A great dividing line was at the Reformation. The Reformation came, and as with the besom of destruction swept away the whole of that series of ideas connected with such matters as the Zodiac, and to this day we have never recovered the lost ground.

Up to the time of the Reformation all our important churches possessed a Zodiac. V. le Duc, the official architect of Napoleon III. has said that in the mediæval days every church in France had its zodiac. There are many uses to which it has been applied. Some have even said it was the very origin of religion. It was extensively used in the Patriarchal Church (the first Church), the Hebrew Church (the second Church), and in the Christian Church (the third and last true Church). This zodiacal arrangement has laid hold with tenacity on these three Churches, and cannot therefore be an insignificant subject, having also been so extensively adopted in the Pagan religion. It is impossible to understand the peculiarities of that Church unless you know something of the Zodiac. If we ask for the Bible of the Christian Church, the answer is the New Testament ; for that of the Hebrew Church, the answer is the Old Testament ; but for that of the Patriarchal Church probably there is no answer. Here is the answer which can be set forth and examined and considered. The Christian Church stands or falls by the Hebrew Church. If you undermine and destroy that Church you undermine the Christian Church itself. The Hebrew Church is the result of the Patriarchal Church. One is the flower of which the other is the bud.

Another point is that the Zodiacal arrangement shows the essential identity of the doctrines of these three Churches, and it is also constantly referred to in the Old Testament. There are passages and texts which cannot be explained without this key ; and so also in the New Testament, but then the types and shadows passed away and there was not the same necessity ; therefore it is comparatively sparsely used.

It is also found in our own churches and cathedrals. *Opinions of modern investigators may be quoted.*

Sir Wm. Drummond : "There is nothing then impossible in the report of Josephus when he says that the descendants of Seth were successful astronomers, and ascribes to him the invention of the cycle which Cassini brought to perfection—that the invention of the Zodiac ought to be attributed to the antediluvians may appear to some a rash and idle conjecture, but I shall not renounce that conjecture merely because it may startle those who never thought of the subject."

The conclusions set forth by all these writers are amply borne out by numerous extant representations.

Ordinary Zodiacs are unreliable: planispheres are more reliable. They coincide with those used by the Anglo-Saxons of the ninth century.

It is found on a Roman gem, A.D. 100. Going backwards, it is also found on a Babylonian Matsebah discovered by Dr. George Smith, which he dates B.C. 1320. On one side is a cuneiform inscription, and on the other side are signs of the Zodiac.

His translation is given, and in it occurs the expression "the emblems of the gods of Assyria are on this stone."

In the 4th chapter of Genesis, last verse, are the words, "Then began men to call upon the name of the Lord." It is impossible to take that literally, that no man called upon the name Jehovah before that date, which is the date of the birth of Enos. Nor that Adam and Eve and righteous Abel and Seth never called upon the name of the Lord before. Turning to authorities, the LXX, the Vulgate, and Spurrell put the pronoun in the singular number,—this man—then altering the name Lord to Jehovah. The last mentioned man is Seth. Maimonides says that it refers to stars and religion, so we have: "Then began this man (Seth) to call the stars by the name of Jehovah." The Hebrew use of the "name of Jehovah" really means the attributes, characteristics of justice, holiness, and mercy. Hence with the aid of Maimonides we obtain this result: "Then began this man Seth to call the stars by the attributes of Jehovah." I think there is little difference of opinion between those who have been students of Scripture, that Jehovah of the Old Testament is the Jesus of the New—the Messiah.

In regard to the cherubic forms: the cherubim were composed of, or a composite figure of, man and lion, bull and eagle; four symbols in one. The conclusion is that this is the foundation of the Zodiac. (Ezekiel i, 10.) Three of these symbols were placed in three of the cardinal points, while the scorpion took the place of the eagle, which was made a decan.

DISCUSSION.

The SECRETARY.—I wish personally to return thanks on behalf of myself and the Institute to the reverend gentleman who has given us this remarkable lecture, because he acceded at once to

a request which I transferred to him' when I was at a loss how to fill this evening with a suitable paper. In turning over documents I found two papers by Mr. Grimaldi, and it occurred to me that the subject of this paper would be of great interest; certainly it is a subject of which we have very little knowledge but which now will be better known to the members. I beg to propose a hearty vote of thanks to the Lecturer.

Colonel HENDLEY, C.I.E.—I should like to ask the Lecturer whether the coins he saw with signs of the Zodiac were coins of the Mogul Empire, because he referred to the vase alone being represented. In these Mohammedan coins the figure would be, if possible, left out.

Mr. GRIMALDI.—Yes, on these coins it is only the vase. They are gold mohurs of Jehanger, 1627.

Colonel HENDLEY.—You spoke of the Reformation having done away with the influence of the Zodiac, but all through Eastern countries the Zodiac is a most potent influence from an astronomical point of view. No boy can have a name without the Zodiac being referred to, nor can his partner in life be selected for him without it being consulted as to the particular star . . . so that every birth and death of three hundred million people are influenced by the Zodiac.

Mr. GRIMALDI.—I only spoke of countries affected by the Reformation. There is a Zodiac at Iffley, near Oxford, a Norman one. The most curious, I think, in England is in Brookland, on the borders of Kent, but it is not round the doorway, but on the font. This is, I believe, the only Zodiac on a font, that is in England, and it is a very great curiosity of the highest interest. I believe it is Pre-Norman, though it is called Norman.

A MEMBER.—What is the cycle of Seth and Cassini? Is it what Josephus calls the Great Year and states to be equal to six hundred ordinary years, which it was needful for the lives of the antediluvian patriarchs to exceed, as he says, so that they might see the fulfilment of their stellar predictions.*

Mr GRIMALDI.—My lecture has not been based upon a personal scientific knowledge of astronomy. Josephus refers to this extra-

* This is really the summary of Josephus's statement; he does not actually say that the cycle was discovered before the Flood. (*Jos. Ant.*, I, iii, 9.)

ordinary cycle that Cassini, the astronomer, brought to perfection, and proved it to be the most perfect of the astronomical cycles that had then been found.

After some further observations by members :—

The CHAIRMAN said,—I am sorry the Lecturer has not been able to get to a number of interesting points further on. I think there was enough material for another lecture. I am sure you will all wish me to communicate your thanks to the Lecturer.

Mr. GRIMALDI.—I have to thank you ; for, whatever the imperfections of the lecture, I do not think any lecturer could have obtained a more attentive or patient audience. I am glad that I guarded myself at the commencement, in reference to astronomy, by saying that I am not a student of astronomy. The astronomical information given to us is, of course, of very great interest, and in fact of distinct importance. My idea in reference to Cassini is, at the time, the six hundred years cycle was the most perfect then discovered—since then further progress has been made, and very perfect cycles obtained and discovered. In reference to other points, I meant to bring forward some more, and amongst them, that point as to the commencement of the Zodiac which has been very properly referred to—the conjunction of Leo and Virgo. I also had an Egyptian slide to show to the audience on this conjunction.

The Meeting closed with the usual votes of thanks.

COMMUNICATION.

Remarks by Lieut.-Colonel MACKINLAY :—

It is difficult to make remarks on the syllabus of a paper ; however, I venture to send the following :—

The fact that a year contains twelve lunar months and some eleven days naturally suggested the idea of devising some means of dividing the years into twelve *equal* parts ; hence the acceptance of the Zodiacal plan by so many nations.

The effect of the precession of the equinoxes is to cause the sun to be in different signs of the Zodiac at the vernal equinox, after

the lapse of many ages. In remote times the sun was in the sign of Taurus at the vernal equinox; in the time of Hipparchus, when our Zodiac was probably arranged, it was in Aries; while at the present time the sun is in Pisces when the days and nights are of equal length in spring.

Hence, if it is thought to be harmonious to begin the year at the vernal equinox with the sun in Aries, typifying sacrifice, we have a comparison which could have been made in the time of Hipparchus, but which would not have held good in the days of Adam long before, nor in our times long afterwards. Hence we must dismiss the idea that Adam named Aries.

It is by no means easy to ascertain the origin of the signs of the Zodiac which we possess; probably some are due to the seasons corresponding to them in the times of Hipparchus: the sun was then in Leo in July, the time of great heat; in the Scales at the autumnal equinox when the days and nights were of equal length, and in Aquarius in the rainy month of January. Some have thought that Virgo owes its name to the story of Istar seeking for Tammuz. Different nations have different names for the signs of the Zodiac; it is difficult to understand how any one can know that these names which we possess and which we have received through heathen channels, contain Divine teaching any more than do our names for the days of the week.

The Hebrews of old had little need for astronomical knowledge in the regulation of their simple calendar, in which the year consisted of lunar months with an intercalary one inserted when required by observing when the crops were backward during the twelfth month, and when a sheaf of first-fruits, Lev. xxiii, 10, 11, could probably *not* be presented just after the next full moon; in that case the coming month was made an additional one to the old year, instead of the first month of the new year.

In Egypt and Babylonia, on the other hand, the calendar was regulated in a more direct astronomical manner, requiring, of course, considerable knowledge of the movements of the heavenly bodies. In both these countries the study of astronomy became inextricably mixed up with religion, and the worship of sun, moon, and stars and also the superstitions of astrology arose.

There are certainly remains of sun worship to be found in many old churches in different parts of Europe; the fact that representa-

tions of the signs of the Zodiac are also to be met with apparently points to a superstitious veneration for them, inherited most probably from ancient Babylonian or Egyptian sources.

At one time charms engraved with the signs of the Zodiac were not uncommon in England ; the gold finger rings still procurable in India, Egypt, Madeira, and elsewhere, bearing the same signs, may be the remains of this old superstition.

ORDINARY GENERAL MEETING.*

THEOPHILUS G. PINCHES, ESQ., LL.D., IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed.

The following paper was read by the author :

THE MORNING STAR IN THE GOSPELS.

By Lieut.-Colonel GEORGE MACKINLAY, R.A. (Ret.)

THE sun, and specially the rising sun, was an object of interest and admiration to all the great nations of antiquity: the records of Scripture as well as those of Babylon, Assyria, Egypt and Greece all bear witness to this fact.

These same ancient records† also testify to the habit of early rising, which is still prevalent in the modern East, where artificial lights are not nearly so good or so general as with us; thus we read at the present time "at the earliest signs of dawn all India is awake and stirring long before sunrise."[‡]

USES OF THE MORNING STAR.

Consequently we can well understand that the herald of dawn, the planet Venus, the morning star, was eagerly looked for and was readily recognised by the Hebrews and ancient Easterns in general, as they were unprovided with the time-keepers of

* Monday, May 21st, 1906.

† Gen. xliv, 3; 1 Sam. ix, 26, xxix, 10; Ps. cxix, 147; Prov. xxxi, 15; Mark i, 35; Luke xxii, 66; John xx, 1; Acts v, 21; see also Martial ix, 68, xii, 57; Juvenal vii, 222-6.

‡ *Indian Life in Town and Country*, p. 95. H. Compton.

modern Western civilisation. The East moves slowly, and hence we find the morning star still used there for this purpose. In Moab* labourers go out to work in the fields when it rises. In India officers on the march are not unfrequently called very early, while it is still dark, by being told that the morning star has risen.† In Turkey "rising by the morning star, if one is to do early work . . . is common."‡ Hence the planet became a type of a herald, and Dr. Pinches tells us that the Assyrian name for the morning star, "*Dilbat*," means "she who proclaims"; at the present time modern Persians still allude to it as a type of a forerunner.§

These obviously practical uses of the planet invested it with importance, and when the worship of the sun and moon spread over the heathen world, the planet came in for a large share of adoration, being specially identified with the goddess of love. In Babylon, under the name of *Ištar*, it was a chief object of worship, at one time a rival to the greater divinities of the sun and moon. Babylonian boundary stones still exist (several of them being in the British Museum), and on them the sun, moon, and *Ištar* are depicted, each orb being represented of the same size; they are accompanied by inscriptions containing the curses of the divinities represented by these figures on anyone who should dare to move the stones. Babylonian and Accadian hymns to the goddess exist; in one of them she is styled "Queen of the gods and princess of heaven and earth." Consequently Layard and Dr. Pinches|| have both identified *Ištar* with the "queen of heaven." (Jer. vii, 18; xlv, 17-25.) So much was Babylon identified with the worship of this planet, that the nation is spoken of by the prophet, Isaiah xiv, 12, under the name of Lucifer, a son of the morning or the day star. The name *Ashtaroth*, etc., which is found some eighteen times in the Old Testament, corresponds to *Ištar* of the Babylonian tablets. The meaning of *Ashtaroth-Karnaim*, the two-horned *Ashtaroth* (Gen. xiv, 5), is of special interest. Dr. Pinches suggests that it may point to the probability that the ancients were long ago aware that Venus assumes a crescent form at times; the supposition that they were aware of this appearance is strengthened by the fact that Layard found near Pterium a

* Letter from Mr. Harding, lately a missionary in Moab.

† Letter from Lieut.-Col. W. D. Forster, late R.A.

‡ Letter from the Rev. C. S. Sanders, Aintab, Turkey in Asia.

§ Letter, Rev. Newton Wright, D.D., Persia.

|| *Hastings' Dictionary of the Bible*. "Astronomy." By Dr. Pinches.

representation of Hera, the Assyrian equivalent of Ištar with a wand bearing a small crescent at its upper end in one hand, while she holds in her other hand a symbol similar to the present astronomical sign for the planet Venus. This circumstance, coupled with the finding of a rock crystal lens at Nimroud by Layard, caused Proctor* to suppose that the ancient Chaldeans had some artificial means of assisting vision, as it is generally considered to be impossible to see the crescent form of Venus with the naked eye.† It is interesting to note as witness to the importance of Ištar among the ancients that our word star is derived from the Greek *αστηρ*, which is said to be akin to the ancient Babylonian name.‡

According to the Sinaitic inscriptions, the Arabs worshipped the planet§ under the name of 'uzzā until the rise of Mahomet; men's names, such as Abd-al-'uzzā (servant of 'uzzā), were common amongst them, just as Arad Ištar (servant of Ištar) had been in use among the more ancient Babylonians. An Arabic love song to the planet|| still lingers in Morocco.

The planet played its part in astrology, and at the present time the Hindu divinities have a couplet in Tamil which infers that¶ the powers of the Evil Spirit, which they profess to enchant, ceases when the morning star rises, presumably because day will soon come, when the powers of darkness will have to depart.

The Rev. Dr. Jessup, of Beyrūt, says that the morning star is spoken of among the Christian population as a type of Christ; and in many parts of the East, including India, it is no uncommon thing to hear of farmers and others who have noticed the planet in broad daylight.**

We thus find, from various sources, that the planet Venus was a far more familiar object to ordinary people under the conditions of Bible times than it is to the majority of us at the present moment in England; and, consequently, any figurative allusions to the planet would come with far more force

* *Saturn and its System*. Appendix, "Chaldean Astronomy." R. A. Proctor.

† For a discussion of the possibility of seeing the horns of Venus with the naked eye, see *Knowledge*, 1903.

‡ *The Crit. and Ec. Bible Cyclopædia*, p. 55. Rev. A. R. Fausset, D.D.

§ Letter from Syed Ali Bilgrāmi, Professor of Marathi, Cambridge.

|| Letter from Mr. Cuthbert Nairn, S. Morocco Mission, Marrakesh.

¶ Letter Rev. Canon Margöschis, Tinnevely, S. India.

** Letter C. Campbell, Esq., I.C.S.

to the early readers of the Bible than to us. Hence the readiness with which all Eastern readers would understand the allusion to Christ as "the day star" arising in your hearts (2 Pet. i, 19), presumably because His coming to our hearts now is the sure herald of the manifestation of His future glory. Christ is also referred to in the book of the Revelation as the morning star (Rev. ii, 28, xxii. 16), apparently in both cases in connection with His government, which will precede His delivering all over to God the Father (1 Cor. xv, 28).

Simile of John the Baptist to the Morning Star.

But a much fuller and more sustained figure is the likening of John the Baptist to the morning star, in connection with the grand simile of the Lord Jesus to the sun; this has hitherto attracted little or no attention.

The employment of this figure is evident from the prophecy about John the Baptist, Mal. iii, 1. "My messenger and he shall prepare the way before Me," because the same figure of speech is supported by Mal. iv, 2, when Christ is spoken of as the Sun of righteousness, who shall arise with healing in His wings; that this *is* the association of ideas is proved by the reference which Zacharias Luke i, 76, made to these passages in the Old Testament at the birth of his son the Baptist, when he said of him "thou shalt go before the face of the Lord," and when (two verses later on) he likened the coming Christ to "the day spring (sun rising) from on high" which shall visit us. This same passage from Malachi with reference to the Baptist was also quoted by the evangelist Mark i, 2, by the angel before John's birth, Luke i, 17, by Christ during His ministry, Matt. xi, 10, Luke vii, 27, and by Paul at Antioch in Pisidia, Acts xiii, 24.

The evangelist St. John wrote of the Baptist "the same came for witness, that he might bear witness of the Light, that all men through Him might believe. He was not the Light, but came that he might bear witness of the Light," John i, 7, 8. *The* light par excellence is the sun, and the morning star which reflects its light is not the light itself, but is a witness of the coming great luminary.

On three memorable occasions did the Baptist precede and also testify to the Lord, viz., some months before His birth, Luke i, 26, 41, 44; shortly before His ministry, Matt. iii, 11, John i, 29, 30; and by his death about a year before the Crucifixion of the Lord, Matt. xiv, 10; xvii, 12, 13.

The figure of the Baptist as the morning star is thus most suitable.

Method in Scripture Metaphors.

There is always difficulty in translating from one language to another, but when one is an Eastern, and the other a Western one, the difficulties are much increased, because the former are so much richer in metaphor and figure than the latter; and of all Eastern languages Hebrew probably excels in this characteristic. The strict monotheism of the Israelites discouraged the arts of the sculptor and the artist, which flourished among the Egyptians, Babylonians and Greeks. But there can be no doubt that an artistic feeling existed among the ancient Hebrews; the expression of it, however, was chiefly confined to the use made of language; hence we find word-pictures, metaphor, illustration, and symbol employed very freely in the Hebrew scriptures, and to an extent far beyond our experience in ordinary Latin or Greek. The free use of symbolic language, however, exactly suited the genius and the temperament of the first readers of the Scriptures.

We may notice a probable method in the employment of metaphors in Scripture.

Sir Isaac Newton* drew attention to a special feature in the Bible—that figurative language was very generally employed, while the circumstances to which the figure referred were actually occurring. He says:—

“I observe that Christ and His forerunner John in their parabolic discourses were wont to allude to things present. The old prophets when they would describe things emphatically, did not only draw parables from things which offered themselves, as from the rent of a garment, 1 Sam. xv, 27, 28 . . . from the vessels of a potter, Jer. xviii, 3-6 . . . but also when such fit objects were wanting, they supplied them by their own actions, as by rending a garment, 1 Kings xi, 30, 31; by shooting, 2 Kings xiii, 17-19, &c. . . . By such types the prophets loved to speak. And Christ, being endued with a nobler prophetic spirit than the rest, excelled also in this kind of speaking, yet so as not to speak by His own actions—that would have been less grave and decent—but to turn into parables such things as offered themselves. On occasion of the harvest approaching He admonishes His disciples once and again of the spiritual harvest, John iv, 35; Matt. ix, 37. Seeing the lilies of the field He admonishes His disciples about gay clothing,

* *Observations upon the Prophecies of Daniel*, p. 148. Sir Isaac Newton.

Matt. vi, 28. In allusion to the present season of fruits He admonishes His disciples about knowing men by their fruits. In the time of the Passover, when trees put forth their leaves, He bids His disciples 'learn a parable from the fig tree: when its branch is yet tender and putteth forth leaves, ye know that summer is nigh,' Matt. xxiv, 32; Luke xxi, 29."

We may add to Sir Isaac Newton's list the following, which relate to events taking place at known seasons of the year:

Texts.	References.	Approximate Month.	Remarks.
(a) "Lambs in the midst of wolves."	} Luke x, 3 ...	February	{ Before sending out the seventy, Luke x, 1; probably some little time before the last Passover, to allow for their mission and return, Luke x 17. About the lambing season.
(b) "The Kingdom of Heaven is like unto a man that is a householder, which went out early in the morning to hire labourers into his vineyard."	} Matt. xx, 1...	March	{ Just before the last Passover. A pruning of vines took place at this season, Isaiah xviii, 5.
(c) "Son, go, work to-day in the vineyard."	} Matt. xxi, 28		
(d) "Every branch in Me that beareth not fruit, He taketh it away, and every branch that beareth fruit, He purgeth it, that it may bear more fruit."	} John xv, 2 ...		
(e) "Every plant which My heavenly Father hath not planted, shall be rooted up."	} Matt. xv, 13	{ Beginning of April	{ Just before feeding the 5,000, Matt. xv, 32-39, which was about Passover, John vi, 4, 11. Tares were separated at harvest, Matt. xiii, 30, which was shortly to come.

Texts.	References.	Approximate Month.	Remarks.
(f) "I am the Light of the world."	} John viii, 12	September	Reference to lamps at the Feast of Tabernacles, John vii, 2. See <i>The Temple: its Ministry, etc.</i> , A. Edersheim.
(g) "He that entereth in by the door is the shepherd of the sheep . . . I am the door of the sheep."	} John x, 2, 7	November	After the Feast of Tabernacles, John vii, 2, and before the Feast of Dedication, which was winter, John x, 22, early December—a time of year when sheep were folded every night.

Hence we see that allusions were made to things actually present; consequently, if we find other allusions, such, for instance, as the comparison of the Baptist to the shining of the morning star, we may reasonably conclude that the planet was then to be seen in the early morning before sunrise. If this is so, we shall find an indication of the dates of the ministries of Christ and of John, and consequently of the Crucifixion.

Explanation of the Diagram.

Mr. Wickham, F.R.A.S., 1st Assist. Radcliffe Observatory, Oxford, and Mr. Crommelin, F.R.A.S., Assist. Observer, Royal Observatory, Greenwich, have calculated data about Venus as the morning star, A.D. 23-34, from which the diagram (p. 266) has been constructed; in it, the periods, when the planet was the morning star rising an hour or more before daybreak, are indicated by heavy black lines on the *right* of the central line; to complete the diagram the periods when the planet was the evening star, setting an hour or more *after* the sun, are indicated by corresponding dotted lines on the *left* of the *same* central straight line. The horizontal cross lines indicate the solstices, and the crosses in the straight line the equinoxes, and the bracket the period of the Lord's ministry.

On reference to the diagram we learn that the morning star continuously shines for about seven and a half months at the

end of each night, giving at least an hour's notice of sunrise; but if we include the period when it is still visible but gives shorter notice, the time of shining may be lengthened to about nine lunar months.

An eight years' cycle, containing five periods of the shining of the morning star—useful for practical purposes—exists between the apparent movements of the sun and Venus, correct to within a trifle over two days. For instance, it will be noticed that the morning star began to shine at about the Vernal equinox, A.D. 25, and eight years afterwards, viz., in A.D. 33, it again began its period of shining at the same season of the year; and so generally at all years, separated from each other by eight years, the shinings of the morning star were during the same months.

Hence the use of the numerals 1, 2, 3, 4, 5, opposite the shinings of the morning star in the diagram, to draw attention to those which occurred in the same months.

Reference to the diagram informs us that nearly a year elapses after the end of one period of shining of the morning star until the beginning of the next period; as time goes on, further warning is given by the evening star, which gradually attains to the maximum brilliancy of any of the orbs of heaven (except the sun and moon), and thus claims universal attention some six weeks or so before the return of the morning star; the evening star then continues to shine with lessened light for some two or three weeks, till it disappears in the brightness of the sunset. This must have been useful information, and was doubtless common knowledge to people who had to get up early, and who consequently made all the use they could of the indications of the morning star, as they were unprovided with watches and clocks.

Our diagram also gives the probable dates of various events and utterances connected with the Baptist, when he is referred to under the figure of the morning star. The arrangement enables us to see at a glance whether the planet was shining at the end of the night on each of the times under consideration.

We shall at present assume the ministry of the Lord to have lasted between three and four years, and leave the consideration of a shorter period to the end of this article.

It is very generally admitted from the historical data available that the Crucifixion took place between the years A.D. 28–33; the ministry must therefore have begun in one of the years A.D. 24–29.

Examination of texts referring to the Baptist as the Morning Star.

We now proceed to examine the passages in the Gospels referring to the Baptist as the morning star in more detail; *see* diagram.

(a) At the very beginning of his ministry the Baptist referred to the prophecy in Mal. iii, 1, when he was likened to the morning star, when he said "He that cometh after me is mightier than I," Matt. iii, 11, Mark i, 7. John i, 15; *see* also Luke iii, 16, John i, 27, 30, Acts xiii, 25. According to the principle we are adopting of figures from things actually present, the morning star was shining when the Baptist began his ministry, and thus the witness in the sky and the human messenger each gave a prolonged heralding of the One who was to come.

If we refer to Matt. iii, 8, 10, 12, we find the Baptist using three figures of speech at the beginning of his ministry.

1. "Bring forth fruit."
2. "The axe is laid unto the root of the trees." Presumably marking the unfruitful trees for cutting down.
3. "Whose fan is in His hand, and He will thoroughly cleanse His threshing floor; and He will gather His wheat into the garner, but the chaff he will burn up with unquenchable fire."

These three figures all refer to the time of harvest, which must have taken place within the month after the Passover, as the place where John began his ministry was the deep depression "round about Jordan," Luke iii, 3, where the harvest is far earlier than on the Judæan hills.

If we refer to the diagram we see that the morning star was shining during the month after Passover (say April) only in the years A.D. 24, 25 and 27. Hence we conclude that John began his ministry on one of those three years.

(b) John bore a similar witness at the beginning of the Lord's ministry, and cried, saying, 'This was He of whom I said, He that cometh after me is become before me,' John i, 15, *parce qu'il est plus grand que moi* (French translation), repeating the phrase on the morrow, John i, 30; again bearing out the simile of the morning star and the rising sun.

At what time of year was this? It was, of course, a good deal later than the beginning of John's own ministry, probably at least four or five months, to allow time for the Baptist to be known and to attract great public attention. It could not therefore have been earlier than the latter part of August; it

must also have been long before the following Passover, for several events in the Lord's ministry, including the forty days' temptation, occurred before that date. Further, Christ most likely began his public ministry before November, because it is probable that there were leaves on the fig-tree when Nathaniel came from under it, John i, 48.

Consequently our choice of years for the beginning of the two ministries is again narrowed, and we must reject A.D. 24, for the morning star was certainly not shining in August of that year; A.D. 27 may fulfil this condition, but we shall find it cast out a little later on, *see note on (g)*, p. 254. There remains only A.D. 25, which, however, answers admirably, and we therefore assume this year as the beginning of Christ's ministry. We shall find this assumption confirmed by further inferences as we proceed.

(c) The next reference to the Baptist under the figure we are considering is, "He must increase, but I must decrease," John iii, 30. These words were uttered after the Passover, which took place in A.D. 26, most probably on 22nd March, but before John was cast into prison, John iii, 24 (they may have foreshadowed his imprisonment); we may consequently assume that John spoke them about the beginning of April. The figure may allude to—

- (1) The increasing power of the sun as the days lengthen, and the heat becomes greater between mid-winter and mid-summer; the increase of both combined being most rapid shortly after the equinox; and the decreasing of the morning star may refer to its non-appearance in the sky at the end of each night.
- (2) Or the figure may describe the daily appearance when the morning star is shining, when the increasing brilliancy of the rising sun causes the light of its herald to decrease and fade away, as is suggested by *Mimpriss*.*

Which of these two allusions is more probable? The seeming destruction of the stars caused by the rising of the sun was an ancient figure of speech which was generally employed, and it is probably used in 2 Thess. ii, 8. "The lawless one . . . whom the Lord . . . shall . . . bring to nought with the manifestation (forth shining [Gk.]) of His coming." The same idea seems to be carried out in Nahum iii, 16-17: "the

* *Mimpriss' Gospel Treasury*, Section xii, p. 132. John iii, 30.

stars . . . when the sun ariseth they flee away"—if it is allowable for the verb to refer to the stars as well as to the locusts; and both refer to the great men of Nineveh. We thus see that the figure of the rising sun extinguishing the light of the stars is associated with conflict, punishment and judgment, which certainly did not represent the relationship between Christ and his forerunner John. Hence we conclude that the explanation of the figure suggested by Mimpriss, which we have called (2), is not a probable one. But no objection can be brought against the other, which we have called (1). Our diagram tells us that the first and more probable of the two explanations is fulfilled in the circumstance under consideration.

(d) The imprisonment of John took place soon after the last utterance, if, as the Rev. Dr. Sanday* thinks, the events of John ii, 13-iv, 45, did not occupy more than three or four weeks, because when the Lord arrived in Galilee the impression of His public acts at Jerusalem was still fresh, John iv, 45 (this would lead us to explain the ambiguous latter half of John iv, 35, the description of "the field white for harvest" as actually existing, and, "Say ye not, etc.," as a proverb). The estimate that the imprisonment of the Baptist took place very soon after the Passover is somewhat strengthened by the fact that the synoptic gospels record no events in the Lord's ministry before John was delivered up, except the temptation, Matt. iv, 12, Mark i, 14, see also Luke iv, 14; and because the apostle Paul said that "as John was fulfilling his course ["towards the end of his career," Weymouth's translation], he said, 'What suppose ye that I am? I am not He. But behold, there cometh One after me the shoes of whose feet I am not worthy to unloose,'" Acts xiii, 25—words which tend to place the end of John's career as early as is allowable, because the message referred to was uttered by the Baptist when he announced Christ, John i, 26-27. We therefore estimate that John was imprisoned about the middle or end of April, when we see from the diagram that the morning star appropriately was not shining.

(e) The next reference to the Baptist under this simile is a very striking one. Christ speaks of him as "the lamp that burneth and shineth; and ye were willing for a season to rejoice in his light," John v, 35. Though he was in prison, Christ said of him at this time, "You sent to John, and he both was and

* *Outlines from the Life of Christ*, p. 49. Rev. W. Sanday, D.D.

still is a witness to the truth," John v, 33 (Weymouth's translation). A name for the planet Venus as "lamp" or "light," was used in Sanscrit and also in Arabic, and this is very natural; long before he had any thought that this passage of Scripture refers to the morning star the author of this article described the setting of the evening star at sea (it is just similar in appearance to the morning star rising), as resembling a lighthouse near at hand*; and in Scripture, the translation of "helel," Is. xiv, 12, (A.V.), is Lucifer, which means "light bearer," indicating the morning star. (Compare Is. lxii, 1, when "the brightness" and "a lamp that burneth" may refer to the sun and to the morning star respectively.)

Regarding the phrase "to rejoice for a season in his light" it is a custom, still sometimes observed in Egypt, India, and Palestine, for travellers by night—and night travelling is usual in hot climates—to sing songs† on the rising of the morning star, because it announces that the darkness and dangers of the night are coming to an end. An astronomical friend who had never heard of this custom, could not understand how anyone could possibly rejoice in the light of Venus; the abundance of his instruments and clocks had prevented him from realizing the use which Easterns still make of the planet to foretell day; probably most astronomers would have spoken in the same way.

The argument used by our Lord in the passage under consideration seems to be—you were willing to rejoice in the light of the herald of day, which only shines by reflecting the light of the coming sun; the inference to be drawn is, much more should you rejoice when the sun itself has actually risen, when I, the Light of the World, have actually come. This interpretation harmonises with His statement just afterwards (verse 39), that "ye search the Scriptures . . . which bear witness of Me," the inference again being, now that I am come, you ought to receive Me. All through the conversation, the subject is that of witness-bearing—by His own works, by the Father, by John, by the Scriptures, and by Moses; the whole sentence pointing to the necessity of receiving the One to whom such abundant witness had been borne.

The time of this utterance was just after the unnamed feast of John v, 1, and before the Passover of John vi, 1. If, as is often

* "The Transit of Venus, 1882." *Pro. R.A. Institution*, vol. xii, No. 7.

† According to letters received from Dr. Harpur, C.M.S., Egypt, Moulvie Mahomed Nizamuddin, B.A., Prime Minister, Bhopal, and Mr. Forder, of Jerusalem.

assumed, the unnamed feast was Passover A.D. 27, our diagram tells us that the morning star was appropriately shining, as would also have been the case had it been Purim (Feby.) or the feast of weeks at the beginning of June.

(f) Though John was still in prison he was nevertheless bearing witness to Christ, when he sent messengers to Christ, and when the Lord said, Matt. xi, 10, that the Baptist fulfilled the prophecy of Mal. iii, 1, as he was the messenger before the face of the Lord. We have already seen (p. 245) that this prophecy refers to the Baptist under the figure of the morning star, which was shining when this scripture was quoted by Christ when it was harvest time, A.D. 27, for it was spoken *after* the Sermon on the Mount, Matt. v, etc., which was probably at harvest time from its allusions to the lilies of the fields, and the filling of barns; and the quotation was made *before* the plucking of the ears of corn, Matt. xii, 1, which was at the latter part of the same harvest.

(g) From a comparison of Matt. xiv, 1, 10, 16-21, with John vi, 4-13, it appears that the death of the Baptist took place at about the time of Passover, A.D. 28—the last one before the Crucifixion. We see from the diagram that appropriately the morning star was not then shining.

NOTE.—If we had assumed A.D. 27 (see p. 251) for the date of the beginning of the ministry, this would have involved the utterance referred to in (c) and the quotation in (f) being spoken in spring, A.D. 29, when the morning star was *not* shining; and the death of John would have occurred in spring, A.D. 30, when the morning star *was* shining—all three being inharmonious; we therefore definitely cast out A.D. 27 as a possible date for the beginning of the Lord's ministry.

(h) After the death of John, and before the Crucifixion, there came another period of the shining of the morning star during the Lord's ministry in the second half of A.D. 28 (see diagram). At the Feast of Tabernacles, John vii, 2, in the autumn of that year, the Lord called Himself "the Light of the World," John viii, 12 (see also ix, 5), when there can be no doubt He compared Himself to the sun, and which therefore carried on the figure of the Baptist being the morning star.

The Jews apparently recognised the similitude, and their minds must have gone back to John, when they addressed to the Lord at this time (John viii, 25, see also 53) the identical question they put to the Baptist some three years before, "Who art Thou?" John i, 19. On the later occasion they dared to say to the Lord, "Thou bearest witness of Thyself, Thy witness

is not true," John viii, 13, most likely because the Baptist was no longer alive to give his witness.

(i) Looking again at our diagram, we notice that the morning star was still visible in the early winter, at the beginning of December, A.D. 28, at the Feast of the Dedication of the Temple, John x, 22; at that time there were still some echoes of the old question to John, and doubtless remembrance of his witness, when the Jews said to the Lord, "How long dost Thou hold us in suspense? If Thou art the Christ tell us plainly," John x, 24.

(j) Though the figure of the morning star is not mentioned, the dead Baptist still witnessed at a time of the shining of the herald of the day, just after the Feast of Dedication, when the Lord went to the place where John was at the first baptizing, when the people confessed "All things whatsoever John spake of this man were true. And many believed on Him there," John x, 41, 42. As Bishop Ellicott remarks on this passage, "the enthusiasm which John had kindled still burns."

The arrival at Bethabara must most probably have been very soon after the Feast of Dedication in order to allow time for Christ to abide there, John x, 40, and also to tarry at Ephraim, John xi, 54, before the approaching final Passover.

(k) But when we come to the last Passover in the year A.D. 29, the herald of dawn had just disappeared (see diagram). This harmonises with the following record of the complete isolation of the Lord at His Crucifixion, which we reverently notice.

- (i) The disappearance of the witness John by death, Matt. xiv, 10.
- (ii) The forsaking of Him by all His disciples, Matt. xxvi, 56, Ps. xxxviii, 11.
- (iii) The absence of any record of a ministry of angels, as after the temptation, Matt. iv, 11.
- (iv) The hiding of God's face, when Christ uttered the cry, "My God, My God, why hast Thou forsaken Me?" Matt. xxvii, 46; Ps. xxii, 1.
- (v) In nature, the sun's light failed, Luke xxiii, 45.
- (vi) Being day time, the Paschal full moon was of course below the horizon.

We have thus seen that if we assume a three and a half years' ministry beginning autumn A.D. 25, and consequently necessitating Passover A.D. 29 as the date for the Crucifixion, that all references to the Baptist as the morning star harmonise with the actual shining or non-shining of the herald of dawn in

the heavens; we have also shown that no other date which is historically possible will fulfil these harmonies. Hence we conclude that we have obtained an almost independent confirmation of the date A.D. 29 for the Crucifixion.

We will now briefly consider how a length of ministry of between two and three years, as advocated by some,* will satisfy the harmonies. If we assume as before, that historical data force us to place the Crucifixion between the dates A.D. 28–33, this shortened ministry might have begun any year A.D. 25–30. We have already shown that A.D. 26, 28, 29, must be excluded, because the morning star was not shining at the times of year when the Baptist and the Lord began their ministries. There remain, therefore, to investigate A.D. 25, 27, and 30, for the beginning of the Lord's ministry. We have not space to go into details, but it is readily seen by reference to the diagram, that on each of these suppositions there would be failure in the harmonies in at least (*h*), (*i*) and (*j*) conditions. Hence we conclude that our line of investigation does not favour a ministry of less length than three years and some months.

Conclusion.

It must be confessed that we have not adduced strong evidence, but only inferences, which are, however, valuable, because they point to harmonies long hidden, but which were probably quite apparent to the first readers, to whom the periods of the appearance of the morning star must have been far more generally known than they are to us at the present time.

Some readers, on first thoughts, may be inclined to think the foregoing deductions fanciful and unreal, because they involve a train of thought with which they are unfamiliar; some may say it would be quite another thing if it were distinctly stated in the Bible that the Baptist was like the morning star, which will always be shining when he is so alluded to. If that had been written, it would have been in accord with our modern blunt manner of expression, but the special characteristic of the subtle Bible methods, which so generally need some search in order to appreciate their full meaning, would have been utterly lost. Reflection and a fuller acquaintance with Eastern, and specially with Biblical, methods of expression

* See *Hastings' Dictionary of the Bible*. "Chronology of the Gospels." C. H. Turner, M.A. Also *Outlines of the Life of Christ*. Rev. W. Sanday, D.D.

in which symbolism, harmonies and figures of all kinds are very freely employed will, it is believed, prevent any thoughtful reader from hastily rejecting the conclusions which have been drawn, when he remembers that some harmonies akin to those we have investigated actually do exist in Scripture. No one, for instance, would suggest mere coincidence, but rather harmonious design, in the facts that Christ died at the Passover, Matt. xxvi, 18; xxvii, 46, 50; 1 Cor. v, 7; that He rose from the grave on the day when the sheaf of first-fruits was waved before the Lord, on the morrow after the Sabbath after the Passover, Lev. xxiii, 11; John xx, 1; 1 Cor. xv, 20; and that the Holy Spirit fell on the disciples on the day of Pentecost, Lev. xxiii, 15, 16; Acts ii, 1.

A confirmation of this method of harmonies is furnished by the fact that references to the Sabbatic year, A.D. 26-27, in the Gospels also indicate the same date, A.D. 29, for the Crucifixion. Harmonies connected with the Sabbatic year and other harmonies connected with the figure of the Baptist as the morning star combine in indicating B.C. 8 as the date of the Nativity. This year satisfies the scanty historical date perfectly; it is true it involves that Christ must have been thirty-two years' old when He began His ministry, but scholars* tell us that the Greek of Luke iii, 23, "about thirty years of age," will fully and readily include any age between twenty-eight and thirty-two. Want of space prevents any further mention of these two lines of investigation, but they are alluded to in order to show that inferences, similar to the main subject of this article, will also lead to other definite and highly probable results.

If, as we fully believe, the harmonies which have been pointed out really exist, not only do they furnish interesting chronological evidence, but, better far, they bear witness to the utter truthfulness of the Divinely inspired record in the gospels; as the existence of the harmonies would have been impossible in a mere made-up story.

DISCUSSION.

Commander W. F. CABORNE, C.B., R.N.R.I.—My thanks are due to the Victoria Institute for the privilege of listening to another interesting paper from Colonel Mackinlay, and also for the opportunity of taking part in its discussion.

* *Was Christ born in Bethlehem?* p. 197. Professor W. M. Ramsay.

However, I only intend dealing with one point submitted to me by the gallant Lecturer, and that is in connection with the origin of the device displayed on the Turkish ensign, namely, a crescent and star. In a note sent me, Colonel Mackinlay says: "I cannot help thinking it may be due to the morning star—it seems possible the ancients knew it was sometimes horned—as it appears in the telescope, and that the origin of the Turkish emblem is not the moon; but I have no proof of this supposition."

Having consulted various works of reference, it would seem that the emblem in question was instituted in honour of Hecate, a Greek moon-goddess. At the siege of Byzantium by Philip of Macedon, in the fourth century B.C., it is stated that the Byzantines were saved from a night surprise by a flash of light which revealed their approaching enemies. According to one authority, this light was a new moon which suddenly appeared in the heavens. If a moon did appear, probably it was the crescent of an ordinary moon which showed itself unexpectedly between dark, heavy clouds on a dirty night—the sort of night that would be chosen for a surprise attack. Anyhow, out of gratitude to Hecate for their escape, the Byzantines erected an altar in her honour and stamped a crescent on their coins. A star was added then or subsequently, but whether in recognition of the morning star or of Hecate's alleged female parent, Asteria, the starry sky of night, I have not been able to ascertain.

Thus the crescent became and remained the official emblem of Byzantium, and afterwards of its successor, Constantinople, when that city was founded by Constantine the Great, A.D. 324; and when Constantinople was taken by Mahomet II., in 1453, the Sultan assumed the badge by right of conquest, and it has ever since been the distinguishing sign of the Turks.

It is noteworthy that the national flags of other Mohammedan States, such as Morocco, Muscat, Zanzibar, and one or two independent colonies of Arabs, although red like the Ottoman ensign, are innocent of any device; while the Persian emblem is the Lion and the Sun.

We have seen that the crescent, pagan in its origin, was the recognised mark of a great Christian city for upwards of eleven hundred years, and it is nonsense to say that when Constantinople fell into the hands of the Turks the Cross was replaced by the

Crescent. What really happened was that the cross was removed and the crescent remained. In the same way, it is manifestly incorrect to talk about the Crusades having been conflicts between the Crescent and the Cross, because the former was probably not even known to the great majority of the Saracen hosts.

Charles I., King of Naples and Sicily, a son of Louis VIII., of France, in 1268 founded a Christian Order of Knighthood named the Crescent. This Order died out, and was re-instituted, at Algiers, by René Duke of Anjou, brother and heir of Louis III., King of Naples, in 1464. The badge was a crescent of gold, on which was the word "Loz," enamelled in red letters, the import being "Loz (laus) en Croissant"—Praise by Increasing. This semi-religious and semi-military Order had for its objects the honour of God, the defence of the Church, the encouragement of noble actions, and the glory of the founder; but it did not survive the death of its resuscitator.

We may claim that in length of time since it was first used the crescent has been more of a Christian than a Mohammedan badge; and I may add that the crescent, generally surmounted by the cross, is to be seen on some churches in Russia, this being considered a proof of the Byzantine origin of the national Church of that empire.

Mr. ROUSE.—I should like to ask Colonel Mackinlay for the allusions to the Sabbath year which he spoke of.

I should also suggest a different way in which to read the passage in Peter. Speaking of the inspired revelation of God, Peter says: "Whereunto ye do well if ye take heed, as unto a lamp shining in a dark place, until the day dawn and the day star arise in your hearts." This is the way we read it—with the emphasis given by this punctuation. But, if it were read in the way I propose, there would not be the difficulty of the appearance of the star seeming to be confined to our hearts. The teaching is that we ought to be guided by the Bible as a lamp until Christ—a far greater light—again appears. But if it be read this way—"Whereunto ye do well that ye take heed," then, in parenthesis ("as unto a light that shineth in a dark place until the day dawn and the day star arise"), and then, resuming the main clause, "in your hearts"—the meaning would be "Unto which ye do well to take heed in your hearts, until the day dawn and the day star arise." That I think is truly the meaning.

The exceedingly interesting account that we have just heard from Commander Caborne as to the origin of the Crescent must have informed all of us greatly. It has given us an entirely new view of that emblem, which we now find to be rather a Christian than a Mahomedan one. That does not affect the exceedingly curious fact which Colonel Mackinlay brought before us that the crescent was used by the ancient pagans of the East as an emblem of Venus, and his inference that they had probably seen this planet in its crescent phase.

As to the meaning of Ashtaroth-Karnaim, that is a very striking Canaanite place-name, occurring so early as it does in the Bible record. It seems to point to the knowledge of Ashtaroth as bearing horns; and, if Ashtaroth be the same as Venus, whom certainly the intermediate name Ištar denotes, and be also (as it conceivably is) the origin of the Greek word *astēr*, we may conclude that the ancients did know that Venus could assume the form of a crescent. But certainly Ashtaroth (or Astarte, as the Greeks called her in her Phœnician worship) has hitherto been regarded as the goddess of the moon.

I should like to say further that it is quite clear that the Lord's ministry lasted three and a half years. Having "returned" from "His forty days' temptation in the power of the Spirit into Galilee," He made disciples at Bethabara, worked a miracle at Cana, and sojourned "not many days" at Capernaum (Luke iv, 14, John i, 28, 35-51, ii, 1-12). He then went up to keep the Passover at Jerusalem, thus closing a considerable part of a year. Then He repaired with His disciples to a place on the Jordan, where they baptized and made many converts. They were there some length of time—some months we may presume,—but when He learnt that the Jews had heard that He was making more disciples than John, wishing not to eclipse John's reputation, He went northward to Galilee. That the Lord should have been quite eight months teaching and His disciples baptizing ere this step became needful would be only natural in view of the tremendous popularity of John.

Professor ORCHARD.—We have to thank the author for a paper marked by much thoughtfulness and originality. He says himself, with characteristic modesty, that he has not brought forward strong evidences, but merely inferences. That of course is true. The main supports of his theory we may say are the remarkable facts

that the eastern name for the Morning Star is, as Dr. Pinches has pointed out, "She who proclaims"—the idea of a herald; and Sir Isaac Newton's remark that the parabolic language used by the Lord and John the Baptist generally referred—though not always—to things then actually present.

I think we must recognise that although the argument is very probable only, the author has made out a very good case for his conclusions.

It is very interesting to notice that our common word "star" is connected with the Babylonian name of the Queen planet. The rock crystal lens found by Layard is not by any means the sole evidence that the ancients understood artificial aid to vision. They were also acquainted with the use of long tubes and very possibly with some kind of telescope.

I cannot concur with the author in his interpretation of John iii, 30, on p. 25. He gives two explanations, one of them by Mimpriss, —but he prefers the other one. I certainly think that by Mimpriss is more correct. The idea that the wicked one in 2 Thess. ii, is represented by a star, appears altogether improbable.

Again, the author truly says, "if it is allowable for the verb to refer to the stars as well." But it is not allowable, and as it appears to me, the argument in favour of the interpretation No. 1 collapses. But naturally we should take the passage as that suggested by Mimpriss, that the Baptist preceded Christ in the same sort of way as the Morning Star precedes the Sun, and as the Sun increases in brilliance of course the star would decrease. To suggest that non-appearance in the sky is decrease appears to me altogether untenable.

We have to thank the author very much for this valuable paper. He has succeeded in deducing Gospel harmonies from "the music of the spheres," and enlisting the rays of the beautiful planet in attestation to the sacred truth of the Bible. We shall thoroughly agree with him that these harmonies bear witness to the utter truthfulness of the divinely inspired records in the Gospels, as the existence of the harmonies would have been impossible in a mere made-up story.

A MEMBER.—I would like to ask, are we to give up the chronology stated in our Authorised Version of the Bible? There we are told that our Lord was born four years before the period

called A.D., and we read that He was thirty years of age when He began His ministry—that would make Him about thirty-four years old. Then we add the $3\frac{1}{2}$ years, and make His life $37\frac{1}{2}$ years. Are we to reckon the chronology of the Authorised Version as being altogether out of date?

MR. ROUSE.—The idea of Christ being born 4 B.C. is utterly untenable, inasmuch as Herod died just before the Passover in 4 B.C. (cp. Josephus War, I, xxxiii, 8; II, i, 3; Ant. XV, xiv, 5; XVII, vi, 4, Whiston's Notes); and Christ must have been over a year old when Herod ordered that all children should be destroyed "from two years old and under," which in all likelihood was before the final illness began which took about two months to carry him off. Moreover, since the census in the course of which Christ was born could not have been held at Passover time, when the whole population of Palestine was shifting to and fro and Jerusalem was filled with Jews from other countries, and since the last previous season when flocks graze at night and so are watched by their shepherds is from August to September, it was in one of those months, at least a year and a half before Herod's death, or at least in 6 B.C., that the Lord was born (Lewin and Ramsay prove). The chronology, therefore, that appears in the margin of our Authorised Version is palpably wrong.

DR. PINCHES.—I am sure we are all very glad to hear anything which has any bearing upon the chronology of the New Testament. We are always looking to see where we stand and how far the records are trustworthy. I think there is no doubt from what I have heard that Colonel Mackinlay's paper has contributed very materially upon that point; but naturally there is one thing which we will have to consider and our chronologists in general will have to consider, the question of the revision of the date generally assigned to the birth of Our Lord. Upon the chronological point it is not my intention to make any remarks. Chronology is my weak point, and I will leave that alone; but there are one or two notes upon the Morning Star which have occurred to me and which may be of interest.

Colonel Mackinlay has pointed out in his remarks that the name of the planet Venus among the Babylonians was *Dilbat*; the Greek form of which, I remember, is *Delephat*, pointing rather to the form *Delebat*, and that is explained by *Nabat*, meaning "She who

proclaims," the feminine of the third person of *nabá*, "to proclaim." Therefore the Babylonian Venus was apparently a planet and was regarded as "a proclaimer." I say apparently, because there is a possibility that Venus was identified with other heavenly bodies which were regarded as proclaimers, but at the same time the planet Venus was a proclaimer. I will not touch upon the point as to whether the word "star" comes from *Istar* or not. I am a little doubtful. It is not certain until we can get more information.

Another question which has arisen in the course of this paper and the discussion, is the visibility of the crescent form of the planet Venus. There is a very interesting list of gods in the British Museum which contains the name of Merodach and describes him as being attended by four dogs, whose names are given. The question is whether these dogs were to be identified with the four satellites of Jupiter. At a meeting of the French Astronomical Society some months ago one of the gentlemen present said that in his opinion it was possible to see the satellites of Jupiter with the naked eye; and if the satellites of Jupiter could be seen with the naked eye, it seems to me that in a country like that, where the atmosphere is so clear and the stars are so much more visible than with us, it is very probable that the phases of Venus were visible likewise to the more sharp-sighted of the star-gazers of that ancient time. In connection with this it is not only to be noted what Colonel Mackinlay has instanced, namely, that the stars as time-keepers and time-givers have very much greater importance in the East than with us; but it is also a fact that, in ancient times, especially among the heathen and semi-heathen nations, there were people who wished to find out things from the stars, and who were always observing them. As you know, we have a proverb which says, "Practice makes perfect," and their vision was in all probability perfected by practice to a much greater extent than the natives of that country at the present time. Notwithstanding the existence of a piece of crystal roughly shaped somewhat as a plano-convex lens, I do not think, myself, that we can say that the Babylonians or any other nation of antiquity had attained to the invention of the telescope.

An interesting question is, whether Ashtaroth-Karnaim was the moon-goddess or not. Of course the general opinion is that Ashtaroth-Karnaim is the moon-goddess, but if the word Ashtaroth

is the same as Ištar (and we find the form Ashtara in the Babylonian tablets at the beginning of the second millennium before Christ, as a kind of intermediate form), I think there is no doubt that originally it must have meant the planet Venus; but I cannot bring forward any proof that the general opinion that Ashtaroth was the moon-goddess is wrong. We can only say that, at least in the Babylonian records, there is no proof that Ištar (who is the prototype of Ashtaroth) was the moon-goddess. But in one case—perhaps more than one—the descent of Ištar into Hades, as it is called—she is described as the daughter of Sin; that is, the daughter of the Moon, one of the great gods of the Babylonians. Sin was the light-giver. But in the descent of the Ištar into Hades we have to bear in mind the purpose for which she went down to Hades. It was to seek Tammuz, her husband. Now Tammuz is regarded as a Sun-god, and she, therefore, went as his attendant. Descending to the underworld as the winter-sun, she went down to Hades with him accompanying him on his return as the sun renewing its strength at spring-time. It is on this account that she was regarded as the attendant of the sun. I do not know whether there is any bearing, in that view of the planet Venus and the goddess who was identified with her, upon the theory advanced by Colonel Mackinlay, but perhaps he will give us his views when he replies to the remarks which have been made. I am sure we are all most thankful to him for this very interesting paper.

Lieut.-Colonel MACKINLAY.—I thank all the speakers in the discussion for their kind appreciation of the paper, and in addition I am much obliged to Commander Caborne for his interesting information about the origin of the Turkish crescent.

Mr. Rouse asks what is the line of inference in connection with the Sabbatic year; briefly it is this—there are historical reasons for believing that the year beginning at the Feast of the Tabernacles (Deut. xxxi, 10), was a Sabbatic year. Some twelve probable references to facts (such as cessation from sowing, etc.) connected with the Sabbatic year can be detected in the Gospels; e.g., if A.D. 29 was the date of the Crucifixion the four parables about sowing, Matt. xiii, 3–23, 24–30, 31–32, Mark iv, 26–29, were uttered soon after the end of the Sabbatic year. The resumption of sowing, which had not taken place for two years, would then arouse more than ordinary interest, and therefore the subject of sowing would

serve specially well for the groundwork of parables at that particular time. The harmonies connected with the Sabbatic year are all fulfilled if A.D. 29 is taken as the date of the Crucifixion; but they are not fulfilled if any other date, historically possible, is assumed. May I add that these and other harmonies will be fully considered in a small book shortly to be published, which will be entitled, *Suggestive Gospel Harmonies*.

In reply to Professor Orchard, it was an ancient figure of speech for the non-setting stars to typify the powers of darkness destroyed by the shining of the rising sun—type of supreme power. I can see no objection to the wicked or lawless one (2 Thess. ii, 8) being spoken of under the figure of a star, since a star, in figurative language, is an emblem of one who is powerful, irrespective of goodness or badness, Jude 13, Rev. viii, 10, 11, etc. I leave scholars to say whether the meaning which I have suggested in Nahum iii, 16, 17, is possible or not. If it is not possible the general employment of this figure of speech by the ancients and the inferences found from the passage in the Epistle to the Thessalonians remains untouched. It is true, as the Professor says, that non-appearance is not the same as decrease, but an exact definition cannot be closely pressed when figurative language is considered; the utterance is expressed in the dual method so common in Hebrew (*e.g.*, Prov. x, 1, xi, 5, etc.). *We* might have used the words “altogether absent,” instead of “decrease,” but then the Hebraic balance would have been lost. Though the morning star was absent, it may still have been said to have been decreasing at the time when John was speaking, as the planet was receding farther and farther away from its position as the morning star, and it was consequently increasing its angular distance from the sun as the evening star, until a little after the following midsummer.

The question as to whether the ancients saw the horns of Venus by aided or by unaided vision is full of interest; but both assumptions point to the fact that the heavens were watched with care, and that very great attention had been bestowed on the planet by the easterns of old.

With reference to our chairman's observations, Venus is an interim planet and is never at a greater angular distance from the sun than about forty-three degrees; it may consequently be said to accompany the sun as its attendant, in mythological language, to the under

world towards the seasons of autumn and winter, returning with it in the spring.

Dr. PINCHES.—It has just occurred to me, with regard to the descent of Ištar into Hades, that in other instances she is referred to as the daughter of Anu, but on this special occasion she is called the daughter of Sin. May this not be because, like the moon-god, she was horned? That is a point of special importance in considering whether the phases of Venus were visible to the unaided eyes of the Babylonians.

I am sure you will all join in the vote of thanks which I should like to give to the Lecturer for his very interesting communication.

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1897¶*Mackinlay, Lieut.-Colonel George, late R.A. (*Hon.*
Auditor).
1904 Marchant, Rev. James, F.R.S.L.
1885 †Marshall, Rev. C. J.
1901 Matthews, Ernest R., Esq. A.M.I.C.E. F.G.S.
1872 Matthews, John T. Esq.

- J** *†McARTHUR, ALEXANDER, Esq. D.L. J.P. F.R.G.S.
 (VICE-PATRON).
 1885 McArthur, W. A. Esq. M.P.
 1894 McCullagh, Rev. J. B.
 1898 Molony, Edmund Alexander, Esq. (Indian Civil
 Service).
 1877 Morgan, R. C. Esq.
 1905 †Mortimer, Rev. Alfred G. D.D. Philadelphia.
 1900 Mudd, Christopher, Esq. F.L.S.
 1881 †Mullens, Josiah, Esq. F.R.G.S.

N.

- 1880 ✠Napier, James S. Esq.
 1878 NELSON, The Right Hon. The Earl.
 1881 Newton, Rev. Preb. Hcrace, M.A. Camb. Prebendary
 of York.

O.

- 1902 Olsen, Ole Theodor, Esq. F.L.S. F.R.A.S. F.R.G.S.
 Ord, Wasa, Sweden, Ord St. Olaf of Norway;
 St. Andrews Terrace, Grimsby.

P.

- 1885 Pain, R. Tucker, Esq. J.P. Memb. Graphic Soc. Memb.
 Art and Amateurs' Soc.
 1881 Patton, Rev. F.L. D.D. LL.D. Prof. Relations of
 Philosophy and Science to the Christian Religion,
 Principal, Princeton Theo. Seminary.
 1885 †Paynter, Rev. F. M.A. Camb.
 1894 *Perowne, Edward Stanley Mould, Esq. F.S.A. (Hon.
 TREASURER.)
 1896 †Petter, Rev. W. D. H. M.A. Camb.
 1872 †Phené, J. S. Esq. LL.D. F.S.A. F.G.S. F.R.G.S.
 1882 †Pogson, Miss E. Isis; F.M.S. Meteorological Reporter
 and Assist.-Govt. Astronomer, Madras.
 1888 †Powell, Sir F. S. Bart. M.P. F.R.G.S.
 1906 Prince, Professor John Dyneley, B.A. Ph.D.

R.

- 1896 Ragg, Rev. Preb. Lonsdale, M.A. Oxon.
 1893 Reade, Miss F. M.
 1880 Rivington, Rev. Cecil S. M.A., Hon. Canon of Bombay.
 1891 Rogers, Rev. Prebendary Joseph E. M.A.
 1900 Rosedale, Rev. H. G. M.A. D.D. Oxon. F.R.S.L.

- 1899¶*Rouse, Martin Luther, Esq. B.L.
 1872 Rowe, Rev. G. Stringer.

S.

- ♣ Scales, George J. Esq.
 1903 Schuster, Rev. William Percy, M.A. Oxon.
 1882 †Scott-Blacklaw, Alex. Esq.
 1891 Sessions, Frederick, Esq. F.R.G.S. M.R.A.S.
 1904 Sewell, Ebenezer J. Esq.
 1887 Simons, Henry Minchin, Esq.
 1889 †Simpson, Prof. Sir A. R. M.D.
 1893 Smart, Francis G. Esq. M.A. M.B. F.L.S. F.R.G.S.
 F.S.A.
 1886¶*Smith, Gerard, Esq. M.R.C.S.E.
 1873 Smith, Philip Vernon, Esq. M.A. LL.D.
 1881 †Smith-Bosanquet, Horace J. Esq. D.L. F.R.G.S.
 1875 ¶Stewart, Rev. Alex. M.D. LL.D.
 1871 Stewart-Savile, Rev. F. A. M.A. J.P.
 1892 †Stilwell, John Pakenham, Esq. J.P.
 1885 †Strathcona and Mount Royal, Lord, G.C.M.G. LL.D.
 F.R.G.S. F.G.S. (VICE-PRESIDENT.)
 1903 Streatfeild, Rev. G. S. M.A.
 1903 *Sutton, Arthur W. Esq. F.L.S.
 1870 SYDNEY, The Most Reverend W. Saumarez Smith,
 D.D. Bishop of, Metropolitan of N.S.W. and
 Primate of Australia.

T.

- 1881 †Taylor, Rev. Canon Robert.
 1897 Townsend, Rev. Professor L. Tracy, D.D. LL.D.
 1899 Tremlett, James Dyer, Esq. (Barr.-at-Law) M.A.
 Camb.
 1871 *Tremlett, Rev. Dr. F. W. D.D. D.C.L. Hon. Ph.D.
 Jena Univ. F.R.G.S. Chaplain to Lord Waterpark,
 Eccles. Com. for American Prelates and the Univ.
 of the South.
 1889 Tritton, Joseph H. Esq. F.R.G.S. F.S.S.
 1901 Tucker, Rev. J. S. M.A.
 1894¶*Tuckwell, Rev. John, M.R.A.S.
 1883 Turton, Lt.-Col. W. H. D.S.O. R.E. F.R.G.S.

U.

- 1889 Urquhart, Rev. John (winner of the Gunning Prize,
 1905).
 1880 Usherwood, The Ven. Archdeacon T. E. M.A.

V.

- Vanner, James E. Esq.
 1875 †Veasey, H. Esq. F.R.C.S.

W.

- 1876 ¶*Wace, Very Rev. H. D.D. Dean of Canterbury; Hon.
 Chap. to the Queen; late Principal of King's
 College, Lond.
 1873 Walters, William Melmoth, Esq.
 1878 †Watson, Rev. A. Duff, M.A. B.D.
 1903 †Whidborne, Miss Alice M.
 1888* ¶†Whidborne, Rev. G. F. M.A. Camb. F.G.S. F.R.G.S.
 1881 ¶Whiting, Rev. J. B. M.A. Camb.
 ¶ Whitwell, Miss R. M.
 1899 †Wigram, Rev. E. F. E. M.A.
 1894 Williams, Colonel Robert, M.P.
 1879 Willis, Right Rev. Alfred, D.D.
 1887 Wilson, Rev. B. R. M.A.
 ¶*†Woodhouse, Alfred J. Esq. L.D.S. M.R.I. F.R.M.S.
 ¶ Wright, Francis Beresford, Esq. M.A. Cantab. J.P.
 F.R.H.S.

Y.

- 1876 Young, C. E. Baring, Esq. M.A. F.R.G.S.

ASSOCIATES.

- 1878 Adams, Rev. Canon James.
 1894 Adams, Rev. R. M.A. T.C.D.
 1894 Adams, Rev. W. W. D.D.
 1871 Allen, J. Esq. (Hon. Auditor).
 1896 Anderson, Sir Robert K.C.B. LL.D.
 1888 †Andrews, Rev. Walter, M.A.
 1883 Archdall, Rev. Mervyn, M.A.
 1869 †Armagh, The Most Rev. W. Alexander, D.D. D.C.L.
 Archbishop of. Primate and Metropolitan of all
 Ireland.
 1905 Arnström, Rev. D. A.
 1887 Arrowsmith, E. M. Esq.
 1887 Ashby, Robert, Esq.

- 1888 ¶ Ashwin, Rev. C. Godfrey, M.A.
 1891 † Atkinson, Rev. Edward, D.D. Master Clare Coll.
 Cambridge.
 1898 Awdry, Rt. Rev. W. D.D. Bishop of Tokyo.
 1892 Bacou, Rev. T. S. D.D.
 1876 Badger, Rev. W. C. M.A.
 1882 Ballard, Rev. F. M.A. B.Sc. Lond. B.D. F.G.S.
 1893 Barlow, Rev. C. H. M.A. Oxon. Chap. Bengal.
 1889 Barton, Rev. Arthur R. D.D.
 1902 Barton, Rev. Professor G. A. Ph.D.
 1887 BATHURST, Right Rev. C. E. Camidge, D.D. Bishop of.
 1887 Berry, Rev. Canon D. M. M.A. Oxon. Demi of Magd.
 Ellerton Prizeman.
 1893 Berry, Rev. T. Stirling, D.D.
 1894 Bevan, Ven. Archdeacon H. E. J. M.A. Camb.
 Gresham Prof. of Divinity.
 1894 Bice, Prof. Hiram H. Ph.D. F.R.G.S.
 1890 † Bigelow, Professor Melville M. Ph.D.
 1874 Billing, Rev. F. A. M.A. LL.D. F.R.S.L.
 1888 Bird, Arthur, Esq. F.R.G.S.
 1904 † Birkett, Rev. Arthur Ismay, M.A.
 1905 Blakeslee, Rev. E. M.A. Boston.
 1884 Blair, Rev. W. Hugh T. L.T.H.
 1905 Blandy, Miss Grace.
 1873 † Bodkin, W. Esq. M.D.
 1900 Bolton, Miss Elsie H.
 1890 Bomford, Rev. L. G. M.A.
 1879 Bomford, Rev. Trevor, M.A. Camb.
 1902 Boord, Miss Eva J.
 1887 Bourdillon, E. Esq., C.E.
 1887 Bowman, Rev. Prof. S. L. A.M. D.D. S.T.D. P.S.L.
 1891 ¶ Boyd, Rev. T. Hunter.
 1895 Breed, Rev. Professor David R. D.D.
 1895 Breed, Rev. F. W. B.A. Durham.
 1887 Bridgeman, Col. the Hon. Francis C.
 1882 Broadbent, Colonel J. E. C.B. R.E.
 1900 Brown, J. Walter, Esq.
 1893 † Bryan, Joseph Davies, Esq.
 1894*† ¶ Bullen, Rev. R. Ashington, B.A. F.L.S. F.G.S.
 1880 Bulteel, M. H. Esq. M.R.C.S.E.
 1883 Burr, Rev. E. F. D.D. LL.D.
 1884 Burton, E. Esq.
 1893 Buswell, Ven. Archdeacon H. D.
 1892 † Butt, Rev. Canon G. H. B.A.
 1889 † Cain, Rev. John.
 1882 CALEDONIA, Right Rev. W. Ridley, D.D. Lord
 Bishop of.
 1894 Carroll, A. Esq. M.D. D.Lit. Ph.D. D.Sc.
 1889 † Candwell, Eber, Esq. M.R.C.S.E. L.R.C.P.
 1890 † Candwell, Paul, Esq. B.A. Solicitor.

- 1894 Chambré, Very Reverend A. St. J. B.A. M.A. D.D.
Dean.
- 1889 Chatterton, Rev. F. W.
- 1891 ¶ Cherrill, Rev. Alfred K. M.A.
- 1884 Chichester, Rev. E. A. M.A.
- 1888 Clapton, Edward, Esq. M.D. F.R.C.P. F.L.S.
F.R.G.S.
- 1893 Clarke, Rev. C. W. A. M.A. Camb. Prin. Noble Coll.
S. India.
- 1888 Clyde, Rev. J. C. A.B. A.M. D.D.
- 1891 † Cobern, Rev. Camden M. B.A. S.T.B. Ph.D.
- 1893 Cockin, Rev. J.
- 1888 Cole, Aj.-General R.A.
- 1906 Collett, Sidney Esq.
- 1897 Collie, Frank L. Esq. M.D. C.M.
- 1898 Collins, Rev. J. M.A. Camb.
- 1905 Collison, Harry Esq. M.A. Barr.
- 1900 Conference Library, Allahabad (Rev. W. E. S. Hol-
land, *Librarian*).
- 1898 Consterdine, Rev. J. W. M.A.
- 1906 Cooke, Charles J. Bowen Esq. M.Inst.C.E.
- 1885 † Coote, S. V. Esq. M.A. Oxon. F.R.G.S.
- 1905 Corrie, Josiah Owen, Esq. B.A. F.R.A.S. *Barr.*
- 1888 ¶ Courtney, W. L. Esq. M.A. LL.D. Fellow and Tutor,
New Coll. Oxford.
- 1885 Crawford, Rev. Prof. W. A.
- 1887 *Creak, Captain Ettrick W. C.B. R.N. F.R.S.
- 1877 Crewdson, Rev. Canon G. M.A. Camb.
- 1899 Cribb, John G. Esq.
- 1878 Crofton, Lieut.-Gen. J. R.E.
- 1890 Crosbie, Rev. Howard A. M.A.
- 1890 Cruddas, W. D. Esq. D.L. J.P.
- 1892 Cuming, George W. Esq.
- 1886 DAKOTA, Right Rev. W. H. Hare, D.D. Bishop of.
- 1894 Darley-Hartley, W. Esq. M.R.C.S. L.R.C.P.
- 1895 Darling, Rev. John Lindsey, M.A. T.C.D.
- 1884 Daunt, Rev. Canon W. M.A.
- 1894 Davies, Rev. Prof. W. W. M.A. B.D. Ph.D. Ed. Arch.
Dep. Methodist Review, Delaware.
- 1876 Dawson, Rev. W. M.A. F.R.H.S.
- 1880 Day, Rev. A. G. M.A. Oxon.
- 1888 Deedes, Ven. Archdeacon Brook, M.A.
- 1894 † Della Rocchetta, of Dolceacqua, Count Arthur, late
Capt. in the General Staff of Italian Army.
- 1890 † De Witt, Rev. Prof. John D.D.
- 1869 Dibdin, Charles, Esq. F.R.G.S. Sec. Rl. Nat. Lifeboat
Inst. Hon. Memb. Cor. Société des Institutions de
Prévoyance.
- 1869 Dibdin, R. W. Esq. F.R.G.S.
- 1898 Dickens, Rev. Alan, B.A.

- 1874 Dimond-Churchward, Rev. Prebendary M. D. M.A.
 1894 Dix, Rev. Morgan, S.T.D. D.D. D.C.L.
 1892 DOWN AND CONNOR, The Rt. Reverend T. J. Welland,
 D.D. Bishop of.
 1897 Drake-Brockman, William Drake, Esq., late Sup.
 Engineer P.W.D. India; late A.I.C.E.
 1888 DUNLEATH, The Rt. Hon. H. L. Lord.
 1885 Durham, The Rt. Reverend H. C. G. Moule, D.D.,
 Bishop of.
 1880 Du-Santoy, Mrs. F. P.
 1905 Eaton, Edmund Esq. C.E.
 1883 Ebbs, Miss Ellen Hawkins.
 1891 Eckersley, Rev. Jas. M.A.
 1889 †Eddy, Mrs. Mary B. G. President Mass. Metaph.
 Coll.
 1887 †Edwards, W. Durston, Esq. C.E. M.I.C. & M.E.
 1885 †Elwin, Rev. Arthur.
 1902 Emmet, Rev. William E. M.A. Oxon.
 1880 Escott, Rev. Hay Sweet, M.A.
 1886 Evans, Mrs. H. M.
 1896 Evington, Right Rev. Bishop H. D.D. (Bishop in
 Kiushin, S. Japan).
 1899 Fairbairn, H. A. Esq. M.D. M.A.
 1899 †Farquharson, Mrs. M.
 1892 Feilden, J. Leyland, Esq.
 1905 Fells, J. M. Esq.
 1903 Ferguson-Davie, Rev. Charles James, M.A. Trin.
 Coll. Camb.
 1876 Field, Rev. Arthur T. M.A. Camb.
 1896 †Field-King, J. M.D. C.S.D.
 1869 †Finley, Samuel, Esq.
 1879 Finnemore, Rev. J. M.A. Ph.D. F.G.S.
 1885 Fleming, Rev. R. H. B.A. D.D.
 1881 Fleming, Sir Sandford, K.C.M.G. LL.D. F.G.S.
 F.R.G.S. V.-President Royal Soc. of Canada.
 1900 Flint, Charles A. Esq.
 1889 †FLORIDA, The Right Rev. E. G. Weed, D.D. S.T.D.
 Bishop of.
 1897 Flournoy, Rev. Parke Poindexter, D.D.
 1894 †Forster, Miss E. J.
 1882 †Fox, C. Dillworth, Esq.
 1882 †Fradenburgh, Rev. J. N. D.D. Ph.D. LL.D.
 1904 Fraser, Rev. Charles Vincent.
 1904 †Frost, Edward P. Esq. D.L. J.P.
 1900 Gardiner, E. J. Esq.
 1873 †Gardner, Mrs. Ernest L.
 1897 Garnett, Thomas, Esq.
 †Gedge, Sydney, Esq. M.A. F.R.G.S.
 1899 Gibbon, Major J. Aubrey, R.E.
 1885 Gibson, Rev. Preb. E. C. S. M.A. Oxon. D.D.

- 1877¶*Girdlestone, Rev. Canon R. B. M.A.
 1877 Goe, Right Rev. Bishop F. F. D.D.
 1903 Goodridge, Richard E. W. Esq.
 1876 Gould, Rev. President G. P. M.A. (Regent's Park College).
 1881 Gray, Charles, Esq.
 1891 Gray, Rev. H. J. Spence, M.A. Oxon, Chaplain to the Government of India.
 1903 Gray, Brigade Surgeon Robert, M.D.
 1893 Greg, R. Philips, Esq. J.P. F.S.A. F.G.S.
 1877 Greenstreet, Colonel W. L. R.E.
 1897 Greer, Mrs. Thomas.
 1902 Gregg, Ivo Francis Hy. Carr, Esq. M.B.A.A.
 1887 Grenfell, Rev. G. F.R.G.S.
 1881 Grey, Rev. H. G. M.A.
 1901¶Griswold, Rev. H. D. M.A. Ph.D.
 1897 Gutch, George A. Esq. C.E.
 1899 Haile, A. S. Esq.
 1892 Hall, Hugh Fergie, Esq. M.A. F.G.S.
 1903 Hamlyn-Harris, Dr. Ronald, D.Sc. F.G.S. F.L.S.
 1896 Hanna, His Honour Judge Septimus J. LL.D.
 1899 Harlowe, David, Esq.
 1901 Harmer, F. W. Esq. J.P. F.G.S.
 1878 Harper, The Ven. Archdeacon H. W. M.A.
 1899 Hartley, Rev. H. A. S. M.D. Liberian Consul, Colombia.
 1894 Harwood, Rev. Edwin, D.D.
 1904 Heaton, James Esq. Memb. Soc. Arts.
 1903¶*Hendley, Colonel Thomas Holbein, C.I.E. (Indian Medical Service, *retired*).
 1889 †Herbert, Rev. Edward P.
 1896 Hewitt, David Basil, Esq. B.A. L.R.C.S. L.R.C.P. J.P.
 1882 Hicks, Rev. Edward, M.A. D.D. D.C.L.
 1891 Higgins, T. W. E. Esq. A.M.I.C.E.
 1892 †Hildesley, Rev. Principal A. H. M.A. Sanawar.
 1901 Hodges, Rev. Albert H.
 1897 Hodgson, Rev. William, M.A. Oxon.
 1902 †Hogarth, Rev. Oswald J. M.A.
 1895 Honduras, Right Rev. George Albert Ormsby, D.D. Bishop of.
 1890 Hooper, Charles H. Esq.
 1904 Hopkins, F. D. Esq. Y.M.C.A. (U.S.A.)
 1906 Horner, William J. Esq.
 1883 †Houstoun, G. L. Esq. F.G.S.
 1902 Howard, Sir Frederick, J.P.
 1888 Howard, Joseph, Esq. B.A. Lond. M.P. F.R.G.S.
 1903 Hull, Charles Murchison, Esq. Civil Service, Natal.
 1900 Hull, Edward Gordon, M.A. M.D. Dub.
 1889 Hutchinson, J. T. Esq. L.R.C.P.

- 1897 Hutton, Henry, Esq.
 1890 Hyslop, Rev. James, M.A. Ph.D.
 1904 ¶Irving, Rev. Alexander, D.Sc. F.G.S.
 1902 †Jacob, Colonel Sir S. Swinton, K.C.I.E. Jaipur.
 1898 Janvier, Rev. Cæsar A. Rodney, M.A. (Princeton).
 1885 Jeffers, Rev. President E. T. A.M. D.D. York Col-
 legiate Inst. U.S.A.
 1904 Jenkins, J. Heald, Esq. M.A.
 1902 Jessop, Arthur, Esq.
 1877 Jewell, F. G. Esq.
 1894 Jewett, Professor J. R. Ph.D.
 1891 Johnson, C. R. Esq. H. Sec. Brighthouse Ch. Lit. Club.
 1896 †Johnstone, Miss J. A.
 1903 Juhlin, Rev. G. (Sweden).
 1879 Kaye, The Ven. W. F. J. M.A. Oxon. Archdeacon and
 Canon of Lincoln.
 JF Kemble, Mrs. Stephen Cattley.
 1892 Kennedy, James, Esq. B.C.S. (Ret.) M.R.A.S.
 1898 Kerr, Robert, Esq.
 1884 Kimball, John E. Esq. A.M. Yale (Sup. Pub. Sc.)
 1883 Kimm, Rev. W. F. M.A. late Fell. Cath. Coll. Camb.
 1883 King, A. Freeman Africanus, Esq. M.D. Dean and
 Prof. Columb. Univ. and Vermont Univ. Memb.
 Path. Anthropol. and Biolog. Soces.
 1887 Kirkpatrick, Rev. R. C. M.A. Oxon. and Dub.
 1880 †Knight, Rev. C. F. M.A. Camb.
 1884 Lach-Szyrma, Rev. W. S. M.A. Oxon.
 1905 Lampe, Rev. Joseph J. D.D.
 1879 Langham, J. G. Esq.
 1873 Lawrence, Ven. Archdeacon C. D. M.A.
 1903 Lawrence, Samuel A. Esq.
 1903 Lea, Alfred, Esq.
 1873 Lea, Miss G. E.
 1893 Lea, W. A. Esq. B.A. Sc.
 1906 Lee, J. Bridges Esq.
 1905 Lees, Rev. Harrington Clare M.A.
 1901 Lefroy, The Right Rev. G. A. D.D. Bishop of Lahore,
 India.
 1885 Lefroy, The Very Rev. W. M.A. Dean of Norwich.
 1885 Levering, W. H. Esq. (Pres. Ind. S. S. Union).
 1873 †Lewis, Rev. J. S. M.A.
 1897 Linton, E. C. Esq. M.A. Camb.
 1900 ¶Lobley, Professor James Logan, F.G.S. F.R.G.S.
 1883 †Lock, Rev. W. M.A. D.D. Oxon. Fell. Jun. Bursar
 and Tutor of Magdalen, Warden of Keble College.
 1878 Locke, Rev. J. G. T.C.D. Senr. Fresh. 1888.
 1892 †Logan, The Honourable James D.
 1901 Lönnebeck, Fredrick Waldemar, Stockholm.
 1887 Lowber, Rev. Chancellor J. W. M.A. LL.D. D.C.L.
 Sc.D. Ph.D. P.S.D. F.R.G.S. Litt.D.

- 1888 Lowrie, Rev. S. T. M.A. D.D.
 1877 Macpherson, Rev. A. C. M.A. A.K.C. (Hon. Loc. Sec.).
 1881 McWilliam, Rev. J.
 1882 Maitland, Rev. H. F. M.A. Oxon.
 1902 Manwaring, George A. Esq. C.E.
 1888 MARSDEN, Right Rev. Bishop S. E. D.D.
 1893 †Martineau, A. E. Esq. (Ind. Civ. Serv.).
 1892 †Masterman, E. W. Gurney, Esq. F.R.C.S. F.R.G.S. D.P.H.
 1897 Maxon, Rev. W. D. D.D.
 1888 Maxwell of Calderwood, Lady.
 1894 Mead, Rev. Charles Marsh, Prof. Th.
 1895 MELANESIA, Right Rev. Cecil Wilson, D.D. Bishop of.
 1892 ¶Mello, Rev. J. Magens, M.A. F.G.S.
 1903 Mercer, Rev. Arthur, M.A.
 1879 Methuen, Rev. T. Plumptre, M.A.
 1905 Millroy, Alfred Taggart Esq., Analytical Chem. Memb. Soc. Chem. Ind., Memb. Amer. Chem. Soc.
 1889 Millingen, J. R. Van, Esq.
 1894 †Milner, Rev. W. M. H. M.A. Oxon. F.R.G.S.
 1903 Mitchinson, Right Rev. Bishop J. D.D. D.C.L.
 1899 Moffat, Rev. J. S. C.M.G.
 1892 †Molony, Major Francis A. R.E.
 1899 Monckton, G. F. Esq. F.G.S.
 1894 Moorehead, Prof. Warren K. M.A. F.A.A.A.S. Curator, Dep. of Arch., Phillips Acad. Andover, U.S.A.
 1879 Morley, Right Rev. S. Bishop of Tinnevely.
 1882 Moule, Ven. Archdeacon A. E. B.D. (Mid China).
 1892 Moulson, Rev. J. M.A. New Coll. Oxon. Sen. Chap Bengal.
 1878 †Mullings, John, Esq.
 1893 Munt, George William, Esq.
 1871 †Nelson, J. H. Esq. M.A.
 1885 †Neve, A. Esq. F.R.C.S. L.R.C.P. Edin.
 1888 †Nimr, Faris, Esq. (Ed. "Mouktataf").
 1888 Nisbet, H. C. Esq.
 1887 Norbury, Inspector-Gen. Sir H. F. K.C.B. M.D. F.R.C.S. R.N.
 1880 Nursey, Rev. Percy Fairfax, M.A. Oxon.
 1879 †Oake, Rev. R. C.
 1886 Oates, Rev. Alfred.
 1880 O'Dell, Professor Stackpool E.
 1902 ¶Odling, Charles W. Esq. C.S.I.
 1894 Oliver, Rev. T. D.D. T.C.D. Memb. Senate, Univ. Dub.
 1891*¶Orchard, H. Langhorne, Esq. Prof. of Logic, M.A. B.Sc.
 1899 Orr, Major Walter Hood, I.M.S.
 1891 Oulton, Rev. Richard Charles, M.A. B.D.
 1902 Paine, Robert Treat, Esq.

- 1898 Parker, Rev Alvin Pierson, D D. President, Anglo-Chinese College, Shanghai
- 1905 Partridge, Deputy Surgeon-General W P.
- 1883 Paterson, Rev T M B
- 1903 Payne, George Herbert, Esq
- 1885 †Payne, J. A Otonba, Esq F R G S Chief Registrar and Taxing Master of the Supreme Court of Lagos.
- 1894 Peake, A S Esq M A Oxon Fell Meiton, late Tutor Mansfield Coll Oxon
- 1887 †Penford, Rev E J
- 1903 Petch, Rev Charles Cousens B A
- 1906 Phipps, Rev J Thompson
- 1894 Pike, Rev Sidney, M A Camb
- 1905 Pilkington, Woodford, Esq M Inst C E
- 1884 Piper, F H Esq
- 1881 Pippet, Rev W A
- 1896 Plantz, Rev President Samuel, D D Ph D
- 1890 Porte, Rev J R A M D D
- 1882 Postlethwaite, J Esq F G S
- 1898 Potter, Ven Archdeacon Belesford, M A T C D
- 1881 Pratt, Rev J W M A D D
- 1880 †Priestley, Rev J J S P G.
- 1888 †Pringle, of Torwoodlee, Mrs
- 1903 Proctor, Henry, Esq H M C S M R A S
- 1875 Rate, Rev J M A Camb
- 1891 Reddie, Edward J Esq
- 1894 Reed, F R. Cowper, Esq B A F G S. Asst to Woodwardian Prof of Geology Camb
- 1876 Rendell, Rev Canon A M M A Camb
- 1899 Revie, Rev Dugald, M B C M Glas Univ Free Church of Scot Medical Mission.
- 1877 Rhodes, Rev D
- 1903 Rice, Hon and Rev W Talbot, M A Oxon
- ✠†*Rigg, Rev J H D D Principal of the Wesleyan Training College, Ex-President of the Wesleyan Conference
- 1885 Riggs, Rev J F. B A M A D D
- 1899 Rimington, Alexander Wallace, Esq
- 1899 †Robinson, Rev Andrew Craig M A
- 1895 Robinson, Maj-General C. G R A
- 1905 Roche, Captain Joseph S N
- 1894 Rogerson, Rev Geo M A
- 1884 †Ross, Rev G H W Lockhart, B A.
- 1891 Rouse, Rev. G H LL B.
- 1881 ROYSTON, The Right Rev Bishop P. S D D.
- 1903 Ryan, Hugh S K. Esq M A Camb
- 1897 Saint Amant, George Stanley, Esq B Sc. Paris.
- 1883 St. Andrew's University, Court of; Stuart Grace, Esq. Factor
- 1891 St Johns, New Brunswick Free Pub. Lib J. R Reul, Esq Chairman

- 1881 Sandford, H Esq
 1895 SASKATCHEWAN, Right Rev J Newnham, D.D
 Bishop of
 1891 ¶ Schofield, Alfred Taylor, Esq M D
 1876 † Seeley, Rev E
 1875 Sharp, Rev J M A Queen's Coll Oxon , Editorial
 Superintendent, Bible Soc
 1902 Sharpe, W E Thompson, Esq M A M P
 1882 Shepherd, Mrs F Wolfskill De
 1901 † Sherard, Rev Clement E M A Camb
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 R A Soc Straits Branch
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and Folk-lore Soc. Anthropol. Inst. and Asiatic
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- 1894 Dawson, G. M., Esq. C.M.G. LL.D. D.Sc. F.G.S. A.R.S.M.
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90, Bolingbroke Grove, S.W.
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SOCIETIES EXCHANGING TRANSACTIONS WITH
THE INSTITUTE.

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 American Institute of Christian Philosophy.
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 Geographical Society of the Pacific
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 Manitoba Historical and Scientific Society
 Michigan, Agricultural College of, U S
 New Zealand Institute.
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 Numismatic Society of Philadelphia, U S.
 Oneida Historical Society
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 Royal Colonial Institute
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 Royal Society of Canada
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 Smithsonian Institution (Washington)
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 Society of Biblical Archaeology
 Society of Biblical Literature, U S.
 Soc Bib Lit and Exeg, Boston
 Sydney Museum, New South Wales
 Sydney Observatory, New South Wales
 United States Bureau of Ethnology.
 United States Geological Survey
 United States Government Geological and Geographical Survey.
 United States Government Reports
 Warwickshire Natural History Society.
 West Chester Philosophical Society, U S

OBJECTS, CONSTITUTION, AND BYE-LAWS
OF
The Victoria Institute,
OR
Philosophical Society of Great Britain.

Adopted at the First Annual General Meeting of the Members and Associates
May 27th, 1867, with Revisions of 1874-75.

§ I. *Objects.*

1. THE VICTORIA INSTITUTE, OR PHILOSOPHICAL SOCIETY OF GREAT BRITAIN, is established for the purpose of promoting the following objects, viz.:—

First. To investigate fully and impartially the most important questions of Philosophy and Science, but more especially those that bear upon the great truths revealed in Holy Scripture; with the view of reconciling any apparent discrepancies between Christianity and Science.

Second. To associate together men of Science and authors who have already been engaged in such investigations, and all others who may be interested in them, in order to strengthen their efforts by association; and, by bringing together the results of such labours, after full discussion, in the printed transactions of an Institution: to give greater force and *influence to proofs and arguments which might be little known, or even disregarded, if put forward merely by individuals.*

Third. To consider the mutual bearings of the various scientific conclusions arrived at in the several distinct branches into which Science is now divided, in order to get rid of contradictions and conflicting hypotheses, and thus promote the real advancement of true science; and to examine and discuss all supposed scientific results with reference to final causes, and the more comprehensive and fundamental principles of Philosophy proper, based upon faith in the existence of one Eternal God, who, in His wisdom, created all things very good.

Fourth. To publish Papers read before the Society in furtherance of the above objects, along with full reports of the discussions thereon, in the form of a Journal, or as the Transactions of the Institute.

Fifth. When subjects have been fully discussed, to make the results known by means of Lectures of a more popular kind, and to publish such Lectures.

Sixth. To publish English translations of important foreign works of real scientific and philosophical value, especially those bearing upon the relation between the Scriptures and Science; and to co-operate with other philosophical societies at home and abroad, which are now or may hereafter be formed, in the interest of Scriptural truth and of real science, and generally in furtherance of the objects of this Society.

Seventh. To found a Library and Reading Rooms for the use of the Members and Associates of the Institute, combining the principal advantages of a Literary Club.

§ II. *Constitution.*

1. The Society shall consist of Members and Associates, who in future shall be elected as hereinafter set forth.

2. The government of the Society shall be vested in a Council (whose Members shall be chosen from among the Members and Associates of the Society and be professedly Christians), consisting of a President, two or more (not exceeding seven) Vice-Presidents, a Treasurer, one or more Honorary Secretaries, and twelve or more (not exceeding twenty-four) Ordinary Members of Council, who shall be

elected at the Annual General Meeting of the Members and Associates of the Institute. But, in the interval between two Annual Meetings, vacancies in the Council may be filled up by the Council from among the Members of the Society; and the Members chosen as Trustees of the funds of the Institute shall be *ex officio* Members of Council.

3. Any person desirous of becoming a Member or Associate shall make application for admission by subscribing the Form A of the Appendix, which must be signed by two Members of the Institute, or by a Member of Council, recommending the candidate for admission as a Member; or by any one Member of the Institute, for admission as an Associate.

4. Upon such application being transmitted to one of the Secretaries, the candidate for admission may be elected by the Council, and enrolled as a Member or Associate of the Victoria Institute, in such manner as the Council may deem proper; having recourse to a ballot, if thought necessary, as regards the election of Members; in which case no person shall be considered as elected unless he have three-fourths of the votes in his favour.

5. Application for admission to join the Institute being thus made by subscribing Form A, as before prescribed, such application shall be considered as *ipso facto* pledging all who are thereupon admitted as Members or Associates to observe the Rules and Bye-Laws of the Society, and as indicative of their desire and intention to further its objects and interests; and it is also to be understood that only such as are professedly Christians are entitled to become *Members*.

6. Each Member shall pay an Entrance Fee of One Guinea and an Annual Contribution of Two Guineas. A Donation of Twenty Guineas shall constitute the donor a Life Member.

7. Each Associate shall pay an Annual Contribution of One Guinea. A donation of Ten Guineas shall constitute the donor a Life Associate.

8. The Annual Contributions shall be considered as due in advance on the 1st day of January in each year, and shall be paid within three months after that date; or, in the case of new admissions within three months after election.

9. Any Member or Associate who contributes a donation in one sum of not less than Sixty Guineas to the funds of the Institute shall be

enrolled as a Vice-Patron thereof, and will thus also become a Life Member or Life Associate, as the case may be.

10. Should any member of the Royal Family hereafter become the Patron, or a Vice-Patron, or Member of the Institute, the connexion shall be regarded as purely Honorary; and none of the Rules and Bye-Laws relating to donations, annual contributions or obligations to serve in any office of the Society, shall be considered as applicable to such personages of Royal Blood.

11. Any Member or Associate may withdraw from the Society at any time, by signifying a desire to do so by letter, addressed to one of the Secretaries; but such shall be liable for the contribution of the current year, and shall continue liable for the annual contribution, until all sums due to the Society from such Member or Associate shall have been paid, and all books or other property borrowed from the Society shall have been returned or replaced.

12. Should there appear cause, in the opinion of the Council, for the exclusion from the Society of any Member or Associate, a private intimation may be made by direction of the Council, in order to give such Member or Associate an opportunity of withdrawing from the Society; but, if deemed necessary by the Council, a Special General Meeting of Members shall be called for the purpose of considering the propriety of expelling any such person: whereat, if eleven or more Members shall ballot, and a majority of those balloting shall vote that such person be expelled, he shall be expelled accordingly. One month's notice, at least, shall be given to the Members of any such Special General Meeting.

13. Non-resident Members and Associates, or others desirous of promoting the objects and interests of the Institute, may be elected by the Council to act as corresponding Members abroad, or as Honorary Local Secretaries, if within the United Kingdom, under such arrangements as the Council may deem advisable.

14. The whole property and effects of the Society shall be vested in two or more Trustees, who shall be chosen at a General Meeting of the Society. The Trustees are empowered to invest such sums as the Council may, from time to time, place in their hands, in, or upon any of the Stocks, Funds, or Securities, for the time being, authorized by statute for the investment of trust funds by trustees, and shall have the usual powers of trustees in regard thereto. [The President, Hon. Treasurer, and Hon.

Secretary may officially give effect to such resolutions as a General Meeting may pass in regard thereto.]

14a. All moneys received on account of the Institute shall be duly paid to its credit at the Bankers, and all cheques shall be drawn, under authority of the Council, and shall be signed by the Honorary Treasurer and Honorary Secretary.

15. The accounts shall be audited annually, by a Committee, consisting of two Members,—one of whom may be on the Council,—to be elected at an Ordinary Meeting of the Society preceding the Anniversary Meeting. This Committee shall make a written Report to the Council at the first Meeting after such audit, and also to the Institute, upon the day of the Annual General Meeting,—stating the balance in the Treasurer's hands and the general state of the funds of the Institute.

16. Both Members and Associates shall have the right to be present to state their opinion, and to vote by show of hands at all General and Ordinary Meetings of the Society; but Members only shall be entitled to vote by ballot, when a ballot is taken in order to determine any question at a General Meeting.

§ III. *Bye-Laws* (Privileges).

1. A Member or Associate, when elected, shall be so informed by the Secretary in a printed copy of the letters, Form B, in the Appendix.

2. Members and Associates shall not be entitled to any privileges, or have the right to be present, or to vote at any of the Meetings of the Society, till they have paid the contributions due by them.

3. Annual subscriptions shall be considered as in arrear, if not paid on or before 31st March in each year, or within three months after election, as the case may be.

4. Should any annual subscription remain in arrear to the 30th June, or for six months after election, the Treasurer shall cause to be forwarded to the Member or Associate from whom the subscription is due, a letter, Form D, in the Appendix, unless such Member or Associate reside out of the United Kingdom; in which case the Form D shall not be sent unless the subscription continues unpaid till the 30th September.

5. If any arrears be not paid within twelve months, the Council shall

use their discretion in erasing the name of the defaulter from the list of Members or Associates.

6. Members shall be entitled to introduce two Visitors at the Ordinary Meetings of the Society; and to have sent to them a copy of all the Papers read before the Society, which may be printed in its Transactions or otherwise, and of all other official documents which the Council may cause to be printed for the Society; they will also be entitled to a copy of all such translations of foreign works or other books as are published under the auspices of the Society in furtherance of Object 6 (§ I.).

7. Associates may introduce two Visitors at the Ordinary Meetings, and shall be entitled to all the minor publications of the Society, and to a copy of its Transactions during the period of their being Associates, but not to the translations of foreign works or other books above referred to.* It shall, however, be competent to the Council of the Society, when its funds will admit of it, to issue the other publications of the Society to Associates, being ministers of religion, either gratuitously or at as small a charge as the Council may deem proper.

8. When it shall be found necessary to send the letter, Form D, to any Member or Associate who may be in arrear, the printed papers and other publications of the Society shall cease to be sent to such Member or Associate till the arrears are paid; and, until then, he shall not be allowed to attend any Meeting of the Society, nor have access to any public rooms which may be in its occupation.

9. The Library† shall be under the management and direction of the Council, who are empowered to designate such works as shall not be allowed to circulate.

10. Each Member‡ shall be allowed to borrow books from the Library, and to have not more than three volumes in his possession at the same time; pamphlets and periodical publications not to be kept above fourteen days, nor any other book above three weeks.

11. Members who may borrow books from the Library shall be answerable for the full value of any work that is lost or injured.

* These, as well as the Transactions issued in the years previous to their joining, may be purchased at half price.

† For the use of Members and Associates.—See 7th Object.

‡ Members only are allowed to take books away.

12. Periodical publications shall remain on the table for a month other books for a fortnight, after they are received.

13. When a book or pamphlet is wanted, and has been the stipulated time in the possession of any Member, the Secretary shall request its return, and a fine of threepence a day shall be incurred for every day it may be detained, which fine shall commence on the third day after the transmission of the notice in the case of town Members, and after the sixth day in the case of country Members ; and until the return of such works, and the discharge of all fines incurred, no further issue of books shall be permitted to the Member applied to.

14. The books shall be ordered in for inspection at such times as the Council shall appoint, and a fine of half-a-crown shall be incurred for neglecting to send in books by the time required in the notice.

15. A book shall lie on the Library table in which Members may insert, for the consideration of the Council, the titles of such works as they desire to be purchased for the Institute.

§ IV. *Bye-Laws* (General, Ordinary, and Intermediate Meeting).

1. A General Meeting of Members and Associates shall be held annually on May 24th (being Her late Majesty's birthday, and the Society's anniversary), or on the Monday following, or on such other day as the Council may determine as most convenient, to receive the Report of the Council on the state of the Society, and to deliberate thereon ; and to discuss and determine such matters as may be brought forward relative to the affairs of the Society ; also, to elect the Council and Officers for the ensuing year.

2. The Council shall call a Special General Meeting of the Members and Associates, when it seems to them necessary, or when required to do so by requisition, signed by not less than ten Members and Associates, specifying the question intended to be submitted to such Meeting. Two weeks' notice must be given of any such Special General Meeting ; and only the subjects of which notice has been given shall be discussed thereat.

3. The Ordinary Meetings of the Society shall usually be held on the first and the Intermediate Meetings on the third Monday evenings in each month, from November to June inclusive or on such other evenings

as the Council may determine to be convenient : and a printed card of the Meetings for each Session shall be forwarded to each Member and Associate.

4. At the Ordinary and Intermediate Meetings the order of proceeding shall be as follows : The President, or one of the Vice-Presidents, or a Member of the Council, shall take the chair at 4.30 o'clock precisely, the minutes of the last Ordinary or Intermediate Meeting shall be read aloud by one of the Secretaries, and, if found correct, shall be signed by the Chairman ; the names of new Members and Associates shall be read ; the presents made to the Society since their last Meeting shall be announced ; and any other communications which the Council think desirable shall be made to the Meeting. After which, the Paper or Papers intended for the evening's discussion shall be announced and read, and the persons present shall be invited by the Chairman to make any observations thereon which they may wish to offer.

The claims of Members and Associates to take part in a discussion are prior to those of Visitors. The latter when desiring to speak upon any Paper, must first send their cards to the Chairman and ask permission (unless they have been specially invited by the Council "to attend, and join in considering the subject before the Meeting," or are called upon by the Chairman). 1875.

5. The Papers read before the Society, and the discussions thereon, fully reported, shall be printed by order of the Council ; or, if not, the Council shall, if they see fit, state the grounds upon which this Rule has been departed from, in the printed Journal or Transactions of the Society.

6. The Council may at their discretion authorize Papers of a general kind to be read at any of the Ordinary or Intermediate Meetings, either as introductory lectures upon subjects proper to be afterwards discussed, or as the results of discussions which have taken place, in furtherance of the 5th Object of the Society (§ I.).

7. With respect to Intermediate Meetings, the Papers read at which are not necessarily printed nor the discussions reported,* the Council at its discretion, may request any lecturer or author of a Paper to be read thereat, previously to submit an outline of the proposed method of treating his subject.

* So arranged when the "Intermediate Meetings" were commenced, 16th January, 1871.

8. At the Ordinary or Intermediate Meetings no question relating to the Rules or General Management of the affairs of the Society shall be introduced, discussed or determined.

§ V. *Bye-Laws* (Council Meetings).

1. The Council shall meet at least once every month from November to June inclusive, or at any other time and on such days as they may deem expedient. The President, or any three Members of the Council, may at any time call a *Special Meeting*, to which the whole Council shall be summoned.

2. At Council Meetings three shall be a quorum ; the decision of the majority shall be considered as the decision of the Meeting, and the Chairman shall have a casting vote.

3. Minutes of the Proceedings shall be taken by one of the Secretaries, or, in case of his absence, by some other Member present, whom the Chairman may appoint ; which Minutes shall afterwards be entered in a minute-book kept for that purpose, and read at the next Meeting of the Council, when, if found correct, they shall be signed by the Chairman.

§ VI. *Bye-Laws* (Papers).

1. Papers presented to be read before the Society shall, when read, be considered as the property of the Society, unless there shall have been any previous engagement with its author to the contrary ; and the Council may cause the same to be published in any way and at any time they may think proper after having been read. If a Paper be not read, it shall be returned to the author ; and, if a Paper be not published within a reasonable time after having been read, the author shall be entitled himself to publish it, and he may borrow it for that purpose.

2. When a Paper is sent to the Society for the purpose of being read, it shall be laid before the Council, who shall refer it to two of that body, or of the other Members or Associates of the Society whom they may select, for their opinions as to the character of the Paper and its fitness or otherwise for being read before the Society, which they shall state as briefly as may be, in writing, along with the grounds of their respective opinions. Should one of such opinions be adverse to the Paper and against its being read before the Society, then it shall be referred to some other referee, who is unaware of the opinion already pronounced upon the Paper, in order that he may state his opinion upon it in like manner. Should this opinion be adverse to the Paper, the Council shall then

consult and decide whether the Paper shall be rejected or read ; and, if rejected, the Paper shall be returned to the author with an intimation of the purport of the adverse opinions which have been given with respect to it ; but the names of the referees are not to be communicated to him, unless with their consent or by order of the Council. All such references and communications are to be regarded as confidential, except in so far as the Council may please to direct otherwise.

3. The Council may authorize Papers to be read without such previous reference for an opinion thereon ; and when a Paper has been referred, and the opinion is in favour of its being read in whole or in part, the Council shall then cause it to be placed in the List of Papers to be so read accordingly, and the author shall receive due notice of the evening fixed for its reading.

4. The authors of Papers read before the Society shall, if they desire it, be presented with twenty-five separate copies of their Paper, with the discussion thereon, or with such other number as may be determined upon by the Council.

§ VII. *Bye-Laws* (General).

1. The government of the Society, and the management of its concerns are entrusted to the Council, subject to no other restrictions than are herein imposed, and to no other interference than may arise from the acts of Members in General Meeting assembled.

2. With respect to the duties of the President, Vice-Presidents, and other Officers and Members of Council, and any other matters not herein specially provided for, the Council may make such regulations and arrangements as they deem proper, and as shall appear to them most conducive to the good government and management of the Society, and the promotion of its objects. And the Council may hire apartments, and appoint persons not being Members of the Council, nor Members or Associates of the Institute, to be salaried officers, clerks, or servants, for carrying on the necessary business of the Society ; and may allow them respectively such salaries, gratuities, and privileges, as to them, the Council, may seem proper ; and they may suspend any such officer, clerk or servant from his office and duties, whenever there shall seem to them occasion ; provided always, that every such appointment or suspension shall be reported by the Council to the next ensuing General Meeting of the Members to be then confirmed or otherwise as such Meeting may think fit.

FORM A.

FORM OF APPLICATION for the Admission of Vice-Patrons, Members, or Associates of the VICTORIA INSTITUTE.

[Date] _____ 19 _____
of the VICTORIA

*I hereby desire to be enrolled as **

INSTITUTE, OR PHILOSOPHICAL SOCIETY OF GREAT BRITAIN.

<p>* Here insert Vice-Patron, or Member, or Life Member, or Associate, or Life Associate.</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Candidate's ordinary Signature, and full name, if necessary.</p> <p>Title, Profession, University degree, &c., or other distinction.</p> <p>Address</p> </div> <div style="width: 5%; text-align: center;"> <p>{</p> <p>{</p> <p>{</p> </div> <div style="width: 50%;"> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> </div> </div>
	<p>If an Author, the name of the Candidate's works may be here stated.</p>

When filled this form is to be sent to the

Honorary Secretary of the VICTORIA INSTITUTE,
8, Adelphi Terrace, Strand, London, W.C.

FORM B.

SIR,

19 .

I have the pleasure to inform you, with reference to your application dated the _____, that you have duly been elected a _____ of the VICTORIA INSTITUTE, OR PHILOSOPHICAL SOCIETY OF GREAT BRITAIN.

I have the honour to be, Sir,
Your faithful Servant,

To _____

Hon. Sec.

FORM C.

(Bankers) Messrs. _____

* Please pay Messrs. RANSOM, BOUVERIE, & Co. my Annual Contribution of Two GUINEAS to the VICTORIA INSTITUTE, due on the 1st of January, 19____, and the same amount on that day in every succeeding year, until further notice.

I am,
Your obedient Servant,

_____, 19 .

If this Form be used, please add your Signature, Banker's Name, and the Date, and return it to the Office, Adelphi Terrace. Receipt-stamp required.

* The above is the form for Members. The form for Associates is the same except that the Subscription stands as "ONE GUINEA."

FORM D.

SIR,

19 .

I am directed by the Council of the VICTORIA INSTITUTE to remind you that the Annual Contribution due by you to the Society for the year _____ is now six months in arrears, and I have to call attention to the Bye-Laws of the Institute, § III, ¶ 4 and 8, and to request you to remit to me the amount due (viz., £ _____) by Post-office order or otherwise, at your earliest convenience.

I have the honour to be, Sir,
Your faithful Servant,

To _____

Treasurer.

FORM E.

FORM OF BEQUEST.

I give and bequeath to the Trustees or Trustee for the time being of THE VICTORIA INSTITUTE, OR PHILOSOPHICAL SOCIETY OF GREAT BRITAIN, to be applied by them or him for the purposes of the said Society, the sum of £ _____, if so intended "free of legacy duty." And I declare that the receipt of the Trustees or Trustee for the time being of the said Society shall be a good discharge to my Executors for the said legacy.

THE JOURNAL OF THE TRANSACTIONS

ISSUED DURING PAST YEARS.

Since the Inauguration of the Society, the following Papers have been read :—
The Quarterly Parts of the Journal are indicated by the numbers prefixed. (*The volumes are sold at One Guinea to Non-Members; Half-a-Guinea to Members and Associates; those issued during the years of subscription are not charged for.*)

FIRST SERIES VOLS. 1 TO 5.

VOL. I.

1. A Sketch of the Existing Relations between Scripture and Science. By the late GEORGE WARINGTON, Esq., F.C.S.
2. On the Difference in Scope between Scripture and Science. By the late C. MOUNTFORD BURNETT, Esq., M.D., Vice-President V.I.
On Comparative Philology. By the Rev. ROBINSON THORNTON, D.D., Vice-President V.I.
On the Various Theories of Man's Past and Present Condition. By the late JAMES REDDIE, Esq., Hon. Sec. V.I.
3. On the Language of Gesticulation and Origin of Speech. By Professor J. R. YOUNG.
On Miracles: their Compatibility with Philosophical Principles. By the Rev. W. W. ENGLISH, M.A.
Thoughts on Miracles. By the late E. B. PENNY, Esq.
On the General Character of Geological Formations. By the late E. HOPKINS, Esq., C.E.
4. On the Past and Present Relations of Geological Science to the Sacred Scriptures. By the Rev. Professor JOHN KIRK.
On the Lessons taught us by Geology in relation to God. Rev. J. BRODIE, M.A.
On the Mutual Helpfulness of Theology and Natural Science. By Dr. GLADSTONE, F.R.S.
On Falling Stars and Meteorites. By the late Rev. W. MITCHELL, M.A., Vice-President V.I.
(*The above Papers, with the Discussions thereon, and with "Scientia Scientiarum: being some Account of the Origin and Objects of the Victoria Institute," with the Reports of the Provisional Proceedings, and the Inaugural Address by the late Rev. Walter Mitchell, M.A., Vice-President, form Vol. I. of the "Journal."*)

VOL. II.

5. { On the Terrestrial Changes and Probable Ages of the Continents, founded upon Astronomical Data and Geological Facts. By the late EVAN HOPKINS, Esq., C.E., F.G.S.
On the Credibility of Darwinism. By the late GEORGE WARINGTON, Esq., F.C.S.
On the Credibility of Darwinism. By the late JAMES REDDIE, Esq., Hon. Sec. V.I.
6. { On Utilitarianism. By the late JAMES REDDIE, Esq., Hon. Sec. V.I.
On the Logic of Scepticism. By the Rev. ROBINSON THORNTON, D.D., V.P.
Annual Address (On the Institute's Work). By the late JAMES REDDIE, Esq., Hon. Sec. V.I.
7. { On the Relations of Metaphysical and Physical Science to the Christian Doctrine of Prayer. By the Rev. Professor JOHN KIRK.
On Geological Chronology, and the Cogency of the Arguments by which some Scientific Doctrines are supported. (In reply to Professor Huxley's Address delivered at Bion College on 21st Nov., 1867.) By the late J. REDDIE, Esq., Hon. Sec. V.I. (1867-68).
8. { On the Geometrical Isomorphism of Crystals, and the Derivation of all other Forms from those of the Cubical System. (6 Plates.) By the late Rev. W. MITCHELL, M.A., V.P.

VOL. III.

9. *On the Antiquity of Civilisation.* By the late Bishop TITCOMB, D.D.
On Life, with some Observations on its Origin. By J. H. WHEATLEY, Esq., Ph.D.
On the Unphilosophical Character of some Objections to the Divine Inspiration of Scripture. By the late Rev. WALTER MITCHELL, M.A.
10. *On Comparative Psychology.* By E. J. MORSHEAD, Esq., Hon. For. Sec. V.I.
On Theology as a Science. By the late Rev. A. DE LA MARRE, M.A.
On the Immediate Derivation of Science from the Great First Cause. By R. LAMING, Esq.
On some of the Philosophical Principles contained in Mr. Buckle's "History of Civilisation," in reference to the Laws of the Moral and Religious Developments of Man. By the Rev. Prebendary C. A. ROW, M.A.
On the Nature of Human Language, the Necessities of Scientific Phraseology, and the Application of the Principles of both to the Interpretation of Holy Scripture. By the Rev. J. BAYLER, D.D.
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On the Biblical Cosmogony scientifically considered. By late G. WARINGTON, Esq., F.C.S.
On Ethical Philosophy. By the Rev. W. W. ENGLISH, M.A.
12. *On some Uses of Sacred Primeval History.* By the late D. McCausland, Esq., Q.C., LL.D.
On the Relation of Reason to Philosophy, Theology, and Revelation. By the Rev. Preb. C. A. ROW, M.A.

VOL. IV.

13. *Analysis of Human Responsibility.* By the late Prebendary IRONS, D.D. (And part 16.)
On the Doctrine of Creation according to Darwin, Agassiz, and Moses. By Prof. KIRK.
14. *On the Noachian Deluge.* By the Rev. M. DAVISON.
On Life—its Origin. By J. H. WHEATLEY, Esq., Ph.D.
On Man's Place in Creation. By the late Professor MACDONALD, M.D.
15. *On More than One Universal Deluge recorded in Scripture.* By late Rev. H. MOULE, M.A.
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On the Respective Provinces of the Observer and the Reasoner in Scientific Investigation. By the Rev. EDWARD GABRIEL, M.A.
On the Credulity of Scepticism. By the Rev. R. THORNTON, D.D., V.P.
16. *On Current Physical Astronomy.* By the late J. REDDIE, Esq., Hon. Sec. V.I.
Analysis of Human Responsibility By the late Preb. IRONS, D.D. (See part 13.) *Concluded.*

VOL. V.

17. *On the Origin of the Negro.* By the late Bishop TITCOMB, D.D.
On the Testimony of Philosophy to Christianity as a Moral and Spiritual Revelation. By the Rev. Preb. C. A. ROW, M.A.
18. *On the Numerical System of the Old Testament.* By the Rev. Dr. THORNTON, V.P.
On Spontaneous Generation; or, the Problem of Life. By the Rev. Prof. KIRK.
A Demonstration of the Existence of God. By the Rev. J. MCCANN, D.D.
Why Man must Believe in God. By the late JAMES REDDIE, Esq., Hon. Sec. V.I.
19. *On Geological Proofs of Divine Action.* By S. R. PATTISON, Esq., F.G.S.
On True Anthropology. By W. HITCHMAN, Esq., M.D.
On Comparative Psychology. (Second Paper.) By E. J. MORSHEAD, Esq., Hon. For. Sec. V.I.
20. *On the High Numbers in the Pentateuch.* By P. H. GOSSE, Esq., F.R.S., V.P.
Israel in Egypt. By the late Rev. H. MOULE, M.A.

NEW SERIES.

BEING THE VOLUMES CONTAINING THE MORE MODERN PAPERS.

VOL. VI. IS THE FIRST OF THIS SERIES.

21. On Civilisation, Moral and Material. (Also in Reply to Sir John Lubbock on "Primitive Man.") By the late J. REDDIE, Esq., Hon. Sec. V.L.
22. On Dr. Newman's "Essay in Aid of a Grammar of Assent." By the Rev. Preb. Row, M.A.
- On the Evidence of the Egyptian Monuments to the Sojourn of Israel in Egypt. By the Rev. B. W. SAVILE, M.A.
- On the Moabite Stone. By Captain F. PETRIE, Hon. Sec.
- On Phyllotaxis; or, the Arrangement of Leaves in Accordance with Mathematical Laws. By the Rev. G. HENSLOW, M.A., F.L.S.
- On Prehistoric Monotheism, considered in relation to Man as an Aboriginal Savage. By the late Bishop TITCOMB, D.D.
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- On Ethnic Testimonies to the Pentateuch. By the late Bishop TITCOMB, D.D.
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- Serpent Myths of Ancient Egypt. By the late W. R. COOPER, Esq., F.R.A.S., M.R.A.S., Sec. Soc. Biblical Archaeology. 129 Illustrations.

VOL. VII.

25. On Natural Theology, considered with respect to Modern Philosophy. By the Rev. G. HENSLOW, M.A., F.L.S.
- On Fatalism. Contributed by the Rev. J. ROBBINS, D.D.
26. On Darwinism Tested by Recent Researches in Language. By F. BATEMAN, Esq., M.D., &c.
- On Force and its Manifestations. By the Rev. J. M'CANN, D.D.
- On Professor Tyndall's "Fragments of Science for Unscientific People." By the late Prebendary IRONS, D.D.
- On the Origin of the Moral Sense. By the Rev. Professor KIM.
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28. On the "Law of Creation—Unity of Plan, Variety of Form." By Rev. G. W. WELDON, M.A.
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VOL. VIII.

29. The Palæolithic Age Examined. By N. WHITLEY, Esq. (Annual Address.) On the Moral and Social Anarchy of Modern Unbelief. By the late Principal T. P. BOUTREE, LL.D.
30. On the Identity of Reason in Science and Religion. Rev. R. MITCHELL.
- On Buddhism. By the Right Rev. Bishop PIERCE C. CLAUGHTON, D.D., &c., with communications from Professors CHANDLER and BREWER.
- On the Contrast between Crystallisation and Life. By the late J. E. HOWARD, Esq., F.R.S.
31. On the Brixham Cavern and its Testimony to the Antiquity of Man—examined. By N. WHITLEY, Esq., Sec. Royal Inst. of Cornwall.
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32. On Prehistoric Traditions and Customs in Connexion with Sun and Serpent Worship. By J. S. PENE, Esq., LL.D., F.S.A., with Illustrations.

VOL. IX.

33. On the Varying Tastes of Scepticism. (Annual Address.) By the Rev. ROBINSON THORNTON, D.D., Vice-President.
On the Harmony between the Chronology of Egypt and the Bible. By the Rev. B. W. SAVILE, M.A.
On the Ethical Condition of the Early Scandinavian Peoples. By E. W. GOSSE, Esq.
34. On Magnitudes in Creation and their Bearings on Biblical Interpretation. By the late Bishop TITCOMB, D.D. Paper on the same, by late Prof. CHALLIS, M.A., F.R.S., F.R.A.S.; with communications from the Astronomer Royal's Department, the Radcliffe Observer, and Professor PRITCHARD, F.R.S.
On Biblical Interpretation in connexion with Science. By the Rev. A. I. McCARTY, M.A. (King's College), with a communication by V.-Chancellor J. W. DAWSON, O.M.G., LL.D., F.R.S.
On the Final Cause as Principle of Cognition and Principle in Nature. By Professor G. S. MORRIS, of Baltimore University, U.S.
35. On the Bearing of certain Palæontological Facts upon the Darwinian Theory of the Origin of Species, and of Evolution in General. By Professor H. A. NICHOLSON, M.D., D.Sc., F.R.S.E., &c.
On the Early Dawn of Civilisation, considered in the Light of Scripture. By the late J. E. HOWARD, Esq., F.R.S.
On the Indestructibility of Force. By the late Professor BIRKS, M.A.
36. On Mr. Mill's Essays on Theism. By the late Preb. W. J. IRONS, D.D.

VOL. X.

37. On the Chronology of Recent Geology. By S. R. PATTISON, Esq., F.G.S.
On the Nature and Character of Evidence for Scientific Purposes. By the Rev. J. M'CANN, D.D.
The Relation of the Scripture Account of the Deluge to Physical Science. By the late Prof. CHALLIS, M.A., F.R.S., F.R.A.S.
38. An Examination of the Belfast Address from a Scientific point of view. By the late J. E. HOWARD, Esq., F.R.S.
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On the Etruscan Language. By the Rev. ISAAC TAYLOR, M.A.
39. On "Present Day Materialism." By the Rev. J. McDUGALL.
On the Sorrows of Scepticism. By Rev. R. THORNTON, D.D., Vice-Pres. (see parts 6, 15, 33.)
On Heathen Cosmogonies, compared with the Hebrew. By Rev. B. W. SAVILE, M.A.
On the Place of Science in Education. By Professor H. A. NICHOLSON, M.D., D.Sc., F.R.S.E.
40. On Egypt and the Bible. By the late J. E. HOWARD, Esq., F.R.S.

VOL. XI.

41. "The Flint "Implements" of Brixham Cavern. By N. WHITLEY, Esq. (*Photographically illustrated*).
On the Flint Agricultural Implements of America. By Dr. J. W. DAWSON, O.M.G., F.R.S.
An Examination of "The Unseen Universe." By the late Preb. IRONS, D.D.
The Uncertainties of Modern Physical Science. By the late Professor BIRKS, M.A.
The Ethics of Belief. By Principal H. WACE, D.D.
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